



CITY OF NEWARK, NJ

DEPARTMENT OF WATER AND SEWER UTILITIES

Pequannock Watershed

Environmental Scientist – Water Resources

Purpose:

The City of Newark is seeking a dedicated and skilled Environmental Scientist to support the sustainable management and protection of the Pequannock Watershed. This role focuses on conducting environmental monitoring, data analysis, and research to ensure water quality, ecosystem health, and regulatory compliance. The Environmental Scientist will play a critical role in advancing Newark's commitment to preserving the watershed as a vital resource for drinking water supply, biodiversity, and climate resilience. Through collaboration with foresters, ecologists, and other watershed staff, the Environmental Scientist will contribute to innovative solutions and data-driven strategies that protect and enhance the watershed's natural resources.

The Community of Newark and its Pequannock Watershed

The City of Newark is a dynamic urban center made up of five distinct wards, over 25 vibrant neighborhoods, a bustling downtown, and a host of world-class cultural, recreational, and entertainment amenities. Located just 12 miles west of Midtown Manhattan, Newark serves as the largest city in New Jersey and the county seat of Essex County. With a population of over 300,000, Newark is one of the most ethnically and culturally diverse cities in the Tri-State area, boasting a Black majority population alongside significant representation from Hispanic, Latino, Asian, and Caucasian communities. Spanning 26 square miles along the Passaic River, Newark offers easy access to New York City, regional attractions, and transportation networks.

The Pequannock Watershed, a critical resource for Newark and its residents, encompasses over 35,000 acres of pristine forested land spanning multiple counties in Northern New Jersey. As the primary source of Newark's drinking water, the watershed is home to five major reservoirs—Charlotteburg, Echo Lake, Clinton, Canistear, and Oak Ridge—collectively providing millions of gallons of high-quality water daily to the City of Newark and several surrounding municipalities. Managed with a focus on ecological health, forest stewardship, and climate adaptation, the watershed plays a vital role in ensuring the sustainability of Newark's water supply and the surrounding environment. The forests and reservoirs of the Pequannock Watershed also contribute to regional biodiversity, carbon sequestration, and recreational opportunities, serving as a key natural asset for both the City and the Highlands community which hosts it.

Together, the City of Newark and the Pequannock Watershed demonstrate the interconnectedness of urban and natural systems, highlighting Newark's commitment to balancing growth with environmental stewardship.



Mayor Baraka's Agenda & City Governance Structure

Mayor Ras J. Baraka, currently serving his second four-year term, leads the City of Newark's executive branch with a commitment to the *Newark Forward* agenda. This agenda emphasizes creating an empowered, safer, collaborative, and equitable city while fostering sustainable practices that benefit both urban and natural environments.

As a critical part of the City's infrastructure, the Pequannock Watershed plays a pivotal role in achieving these goals by ensuring a reliable and high-quality drinking water supply for Newark's residents. The Forester will contribute to this vision by implementing forward-thinking forest management practices that protect water resources, promote ecological health, and support Newark's resilience to climate change.

The Mayor's administration has prioritized sustainability and innovation as key pillars of Newark's growth. Through transformative initiatives, the City is positioning itself as a leader in environmental stewardship. This role aligns with the Mayor's broader agenda to safeguard natural resources while advancing equity and opportunity for Newark's communities.

The City of Newark operates under a strong governance framework, with Mayor Baraka appointing the heads of 14 city departments, including the Department of Water and Sewer Utilities, which oversees watershed operations. Collaboration with the City Council, a nine-member legislative body elected to four-year terms, ensures alignment between legislative priorities and executive initiatives.

The Environmental Scientist will play a crucial role in advancing the City's environmental and watershed management objectives, contributing to Newark's vision of sustainable resource stewardship and optimal water quality from source to tap.

About Newark's Department of Water And Sewer Utilities

The Department of Water and Sewer Utilities is responsible for the planning, operation, maintenance, and modernization of Newark's water supply, treatment, transmission, and distribution, as well as the wastewater and stormwater collection infrastructure. With jurisdiction over the city's water system, from source to tap, the Department is committed to advancing equitable access to high-quality water services for Newark's residents, businesses, and visitors. In alignment with Mayor Ras J. Baraka's *Newark Forward* agenda, the Department supports sustainable resource management, climate adaptation, and infrastructure resilience as key pillars of its operations.

The Department oversees more than 400 million gallons of finished water storage across its reservoirs, over 35 miles of water distribution and sewer pipelines, and state-of-the-art treatment facilities. It also manages initiatives to modernize infrastructure, improve efficiency, and protect natural resources, including innovative approaches to watershed and source water protection.

With the support of the Mayor Ras Baraka and the Director of Water and Sewer Utilities, Kareem Adeem, Newark seeks forward-thinking leaders who can help the Department achieve its mission of providing safe, reliable, and sustainable water and sewer services. This includes addressing emerging challenges such as climate change, aging infrastructure, and environmental protection to safeguard Newark's water resources for generations to come. Therefore, Newark is seeking candidates who can lead with vision, recommend strategic improvements, and implement innovative solutions to meet the evolving needs of the city and its residents.



Job Duties and Responsibilities¹

- Conduct routine water quality monitoring and specialized project-based field sampling and analysis to assess and improve the health of reservoirs and related water systems. Analyze parameters such as temperature, turbidity, dissolved oxygen, nutrients, and emerging contaminants.
- Perform field sampling from both land and water, including boat-based reservoir sampling at multiple depths. Collect data for chemical, physical, and biological water quality indicators to support reservoir management decisions.
- Regularly check and maintain rain gauges within the watershed to corroborate precipitation data with USGS datasets, ensuring the accuracy and reliability of hydrological monitoring.
- Work collaboratively with watershed operations staff to optimize reservoir functionality, including inflow/outflow monitoring, valve operations, and sediment management strategies to balance water supply and quality.
- Collect, organize, and analyze environmental data using statistical software, and other tools. Prepare detailed reports and visualizations to inform watershed management strategies and regulatory compliance.
- Design and implement ecological restoration projects to improve water quality, such as wetland restoration, riparian buffer establishment, and erosion control measures.
- Ensure compliance with local, state, and federal water quality and environmental regulations. Prepare and submit reports to regulatory agencies as required.
- Work closely with foresters, ecologists, and reservoir operators to develop integrated strategies for achieving water quality and reservoir management goals.
- Participate in outreach programs to educate stakeholders about water quality issues and the importance of protecting watershed ecosystems.
- Investigate and recommend emerging technologies or methodologies for water quality improvement, sediment control, and reservoir operations.
- Inspect sampling equipment, rain gauges, and other monitoring infrastructure to ensure proper functionality and accuracy.

¹ **Disclaimer:** The duties and responsibilities outlined for this position are not exhaustive and may evolve based on the needs of the Pequannock Watershed and the Department of Water and Sewer Utilities. The forester is expected to cross-train in all aspects of watershed operations, including but not limited to reservoir management, water quality monitoring, and ecological restoration activities. This role requires a flexible and collaborative professional who is willing to step in and address departmental needs as they arise to support the overall mission of protecting Newark's water resources and ensuring operational excellence.



Knowledge, Skills and Abilities

The ideal candidate for the Environmental Scientist position will be a technically skilled, detail-oriented, and collaborative professional with a strong emphasis on water quality monitoring and analysis.

The ideal candidate will have:

- Knowledge of the principles and practices of environmental science and ecology
- Knowledge of the ecological and toxicological effects of water pollution
- Knowledge of water quality parameters, monitoring equipment, and analytical methods, particularly in reservoir and watershed environments
- Ability to design, develop and execute research studies and surveys
- Ability to read and interpret laws, rules and regulations relating to the environment, surface water and water treatment processes and appropriately apply them in practice
- Ability to read and interpret technical material, engineering specifications, reports and other scientific documents
- Ability to prepare scientific reports and maintain records
- Experience conducting field sampling, including boat-based reservoir sampling and rain gauge inspections.
- Familiarity with reservoir inflow/outflow dynamics, sediment management, strategies to optimize water quality and supply, as well as environmental regulations related to water quality, wetlands, and natural resource management.
- Ability to work effectively with multidisciplinary teams and communicate findings to diverse audiences, including stakeholders and regulatory agencies.
- Ability to work outdoors in various conditions and terrains, including reservoirs and watershed areas.
- Skills to train and mentor staff, fostering professional growth and a collaborative work environment.
- Effectively prioritize tasks, set goals, follow direction, communicate verbally and in written format, keep accurate records, and synthesize facts to reach a logical conclusion
- Ability to hike 5 – 10 miles through wooded and/or steep terrain and carry 30 lbs of equipment over the course of the day



Minimum Qualifications

Bachelor's degree in Environmental Science, Chemistry, Biology or a related field.
A master's degree is preferred.

- **Preferred Experience:**
 - At least two years of experience in water quality monitoring and biological or chemical sampling and analysis.
 - Experience with data analysis, field sampling, water supply management and scientific studies involving surface water
- **Licenses/Certifications:**
 - Appointees will be required to possess a valid driver's license in New Jersey if vehicle operation is necessary to perform essential duties of the position.

Compensation & Benefits

The salary for this position will align with industry standards and depend on experience and qualifications. The City of Newark also offers an attractive benefits package (including insurance for health, dental, vision, and life insurance).