

# Future Water Leaders: Who's next in line?



*This program is made possible under a cooperative agreement with US EPA.*



Only a few people on Earth, out of billions, can take the limited fresh water and make it safe enough to give to everyone else.



# STATE of the WATER INDUSTRY

EXECUTIVE SUMMARY

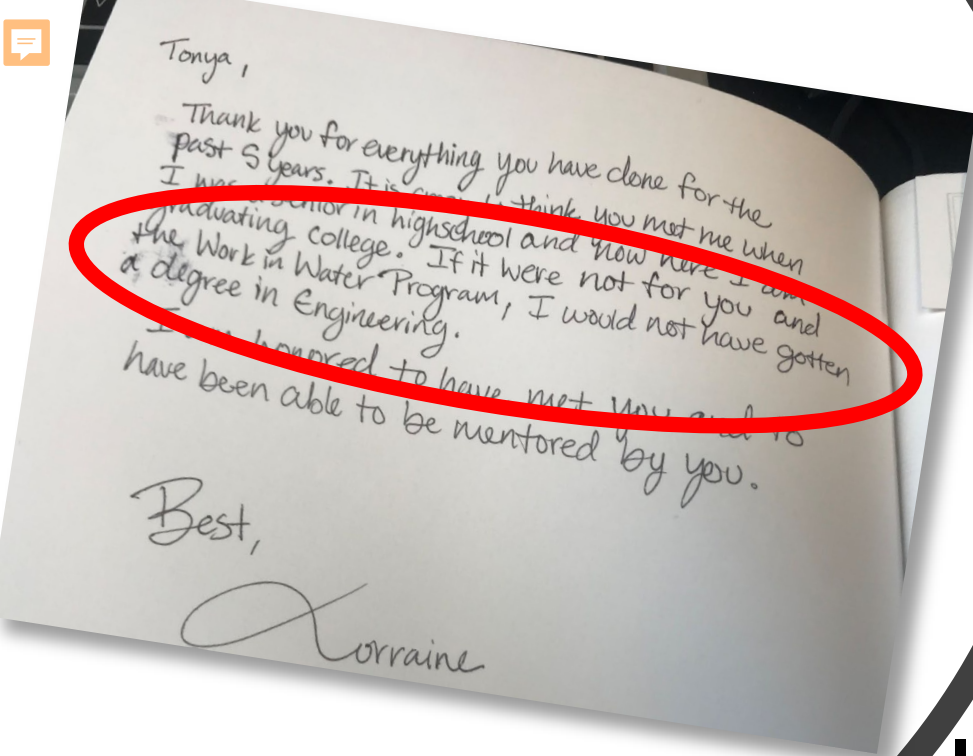
# 2024

## Top 10 Issues Facing the Water Sector as Ranked by All Respondents, 2024

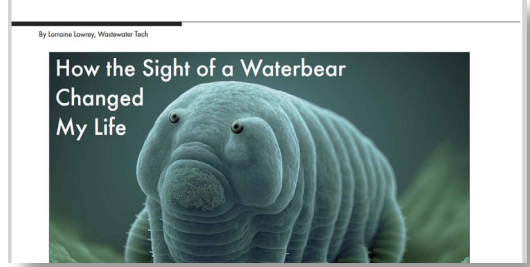
1. Watershed/source water protection
2. Financing for capital improvements
3. Renewal and replacement of aging water and wastewater infrastructure
4. Long-term water supply availability
5. Financial sustainability
6. Public understanding of the value of
7. water systems and services
8. Workforce issues
9. Groundwater management and overuse
10. Drought or periodic water shortages
11. Cybersecurity issues



**Don't Wait!  
Engage Early & Often**



Kansas Lifeline, March 2024 Publication



# Internships Work! Meet Lorraine



The image is a collage of six aerial photographs related to water infrastructure. The top-left photo shows a complex of circular and rectangular tanks. The top-middle photo shows a large industrial-style facility with multiple buildings and tanks. The top-right photo shows a winding reservoir with a small building nearby. The bottom-left photo shows a long, narrow reservoir with a concrete structure. The bottom-middle photo shows two large white cylindrical tanks and a tall water tower. The bottom-right photo shows a cluster of circular tanks and a building. The text 'My Water Quality Experience' is centered over the top three photos, and 'Adam Schnurr, KU Junior' is centered over the bottom three photos.

# My Water Quality Experience

Adam Schnurr, KU Junior

# First: Who Am I?

- Living in Lawrence, KS for 4 years
- Completed my Water Internship June-August 2022
- Just started my 5th semester at KU
  - Majoring in Microbiology with interest in Environment & Chemistry



# Where My Interest Started

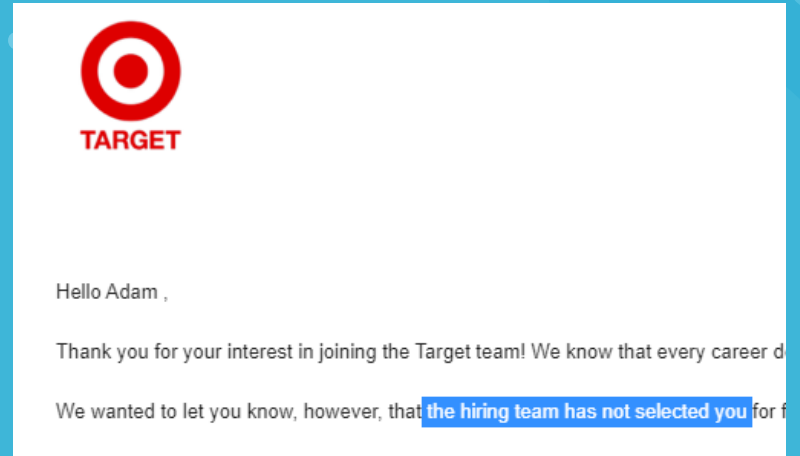
APES Wastewater Treatment Plant Tour: April 2022





# As Summer Came Around

- Job search began
  - Applied to no success
- Where else could I apply that sounds interesting?
  - City of Lawrence Jobs Website
    - Prior experience and interests
    - With encouragement & help from LHS teachers, I applied and interviewed for Water Quality Intern



Applied	Job	City, State	Status
5/21/2022	PetSmart Part Time Seasonal Associate	Lawrence, KS	Rejected

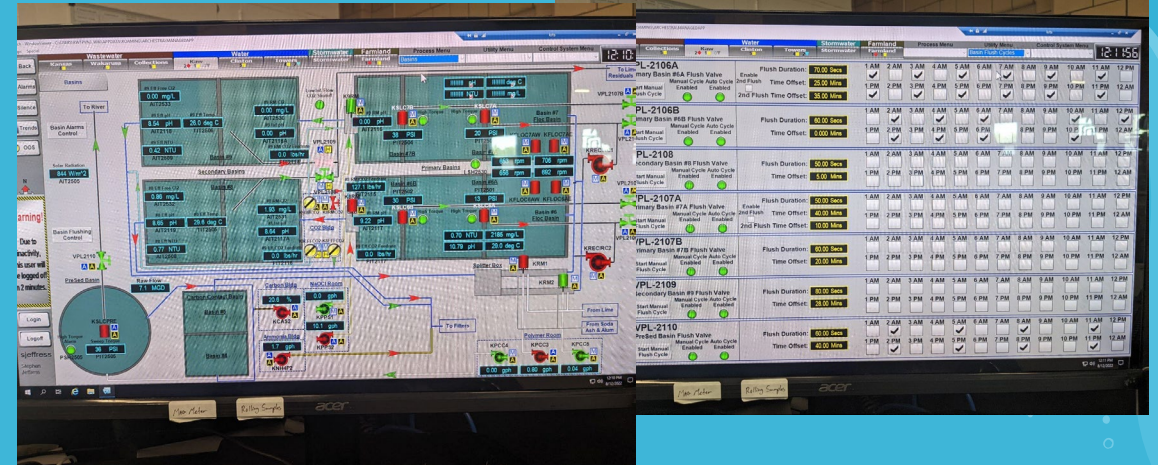
# What Did I Do?



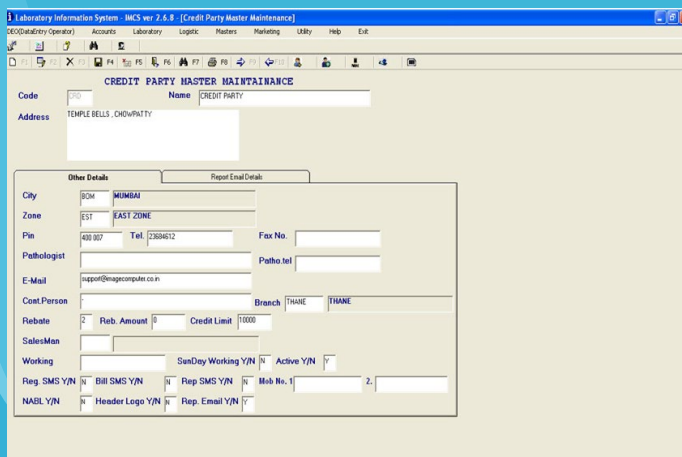
Sample Collection



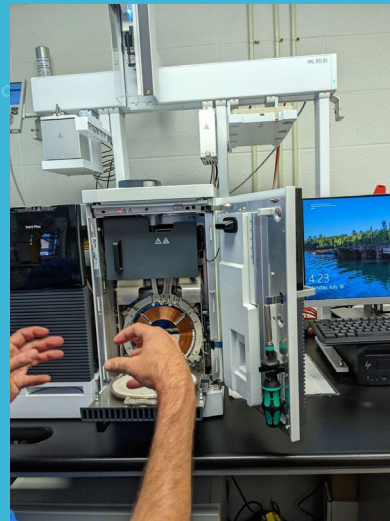
Assisted Plant Operators



SCADA System  
(Supervisory Control And Data Acquisition)



Data Entry (LIMS)



Shadow Technicians  
Gas Chromatography

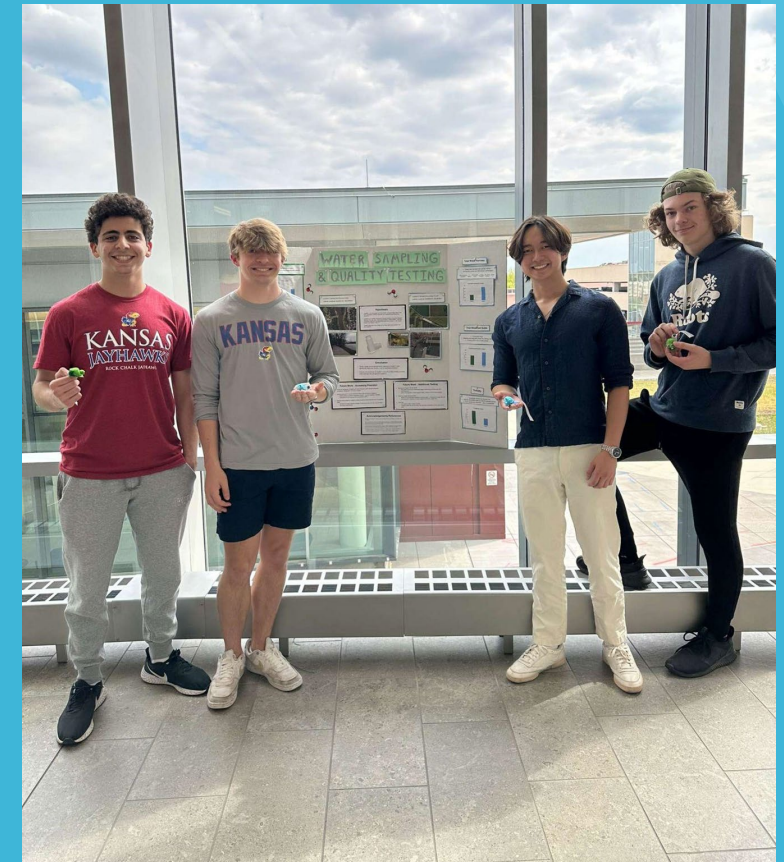
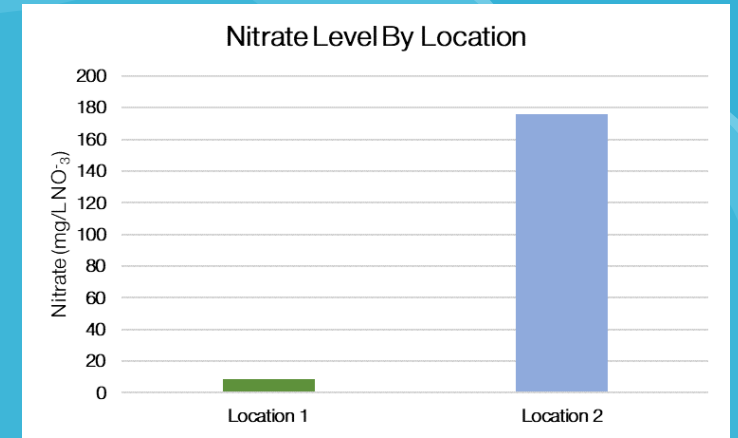


Microbial Adventures (HPC & E. Coli testing)



# Curiosity Leads to Application

- Farmland EPA superfund site in Lawrence
  - Abandoned Fertilizer plant
  - Massive nitrate contamination
  - Used my knowledge to make an take sample
  - Presented in general chemistry lab project



# May of 2023 Class Presentation

- In lieu of tour similar to mine due to scheduling issues, I presented about my internship to the following year's APES class.



Lisa Ball



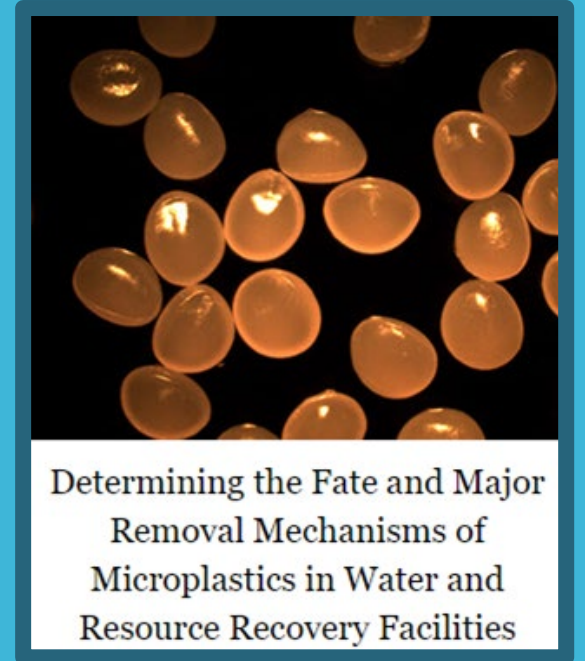
# KU Microbiology Club Field Trip

- With the help of Lawrence's MSO director, I worked to bring KU's Microbiology club on a tour of their modern Wakarusa WWTP
  - Discussed advancements in water treatment
  - Examined the microbes dealing with our waste under the microscope



# What Did I Gain?

- **Appreciation for Our Water**
- **Exposure to New Things**
  - Skills and experience
- **Connections, References**
- **Newfound Curiosities & Interests**
  - What else is there to learn?
- **Insight Into Potential Educational and Career Pathways**
  - How can I connect engineering and microbiology?
  - Research ideas in the field (Belinda Sturm)
  - Microplastics, degradation in wastewater via microbes and how it can be altered
- **None of This Would've Happened Without My Internship!**



# EFC Network: *building programs and tools to bring talented young people into water careers*



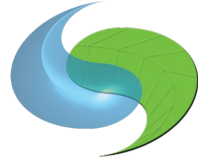
**The Environmental Finance Center Network (EFCN)** is a university- and non-profit-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and environmental infrastructure.



# Future Water Leaders



Environmental  
Finance  
Center  
Syracuse University



SOUTHWEST  
ENVIRONMENTAL  
FINANCE CENTER

**GOAL:** develop a national network of educators and career guidance counselors that will accelerate the pipeline to careers in the water utility sector.

## Deliverables:

- National Advisory Board
- Career Toolkit resources that promote careers in water and wastewater
- Online Portal educational resources; K-12+
- Real-World Experiences

← Wanna Join?



Photo credit edutopia.org





## Filter Results

Resource Type ▼

Audience ▼

Subject ▼

Learning Objective ▼

Reset

### A School Counselor's Guide to Great Water Careers

The resources in this guide will help you identify students who might have interest in a career in the water industry, provide students with resources about water careers, and build curriculum, lessons, or events that introduce students to water professionals and careers. LINKS A School Counselor's Guide to Great Water Careers

January 30, 2024

### WSU's Work in Water Curriculum

This unique and adaptable program introduces students to the vital role water and wastewater systems play in their community. It allows students to explore water careers through real-world experiences and conversations with the people that are working to ensure their homes, school, and local businesses have access to safe, clean, and reliable drinking water and [...]

December 8, 2023

### 13 Water Careers

Brief summary of several different jobs in the water industry, including a short synopsis of responsibilities and possible salary ranges. LINKS 13 Water Careers

December 8, 2023



SCAN ME

## Future Water Leaders

*A School Counselor's Guide to Great Water Careers*





# WORK *in* WATER

Advancing water careers

Check out the  
Work in Water Webpage  
[wichita.edu/workinwater](http://wichita.edu/workinwater)



# Work in Water – Part 1

## **Classroom Activities**



Event Promotion Tools

Template Curriculum

Slide-set

Script

Hands-on Activities

# Work in Water – Part 2

## **Field Trip**



Plant Tours

Career Talks

Interactive  
Opportunities

# Work in Water – Part 3

## **Summer Internship**



6-9 Weeks

At the Water and/or  
Wastewater Plant

Internship, Mentoring,  
Hands-on Experiences

# Capstone Projects

Summer-long project

Intern's choice

Purpose: Share what they learned

Presentation

Video

Display for city hall

A school lesson

Blog

Social media posts

Sky's the limit



Lorraine, El Dorado - 2016



# Students Said



They learned about a career they might be interested in



They would tell their friends to attend Work in Water next year



The Work in Water Program is important






# Counselors Said



Work in Water was a good use of the students' time

They would recommend Work in Water to other teachers/counselors



These projects have been funded wholly or in part by the United States Environmental Protection Agency under assistance agreements to Wichita State University Environmental Finance Center. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.



**FUTURE WATER LEADER**



**TELL YOUR TEACHER. VISIT THE  
EDUCATORS RESOURCE HUB**

*efcnetwork.org*

## Contact Us

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Daniel Botello

[Daniel.Botello@wichita.edu](mailto:Daniel.Botello@wichita.edu)





# Hudson County Community College + Jersey Water Works Water Workforce Program

*A Primer in Water & Wastewater System  
Operations*



# Jason Kiernan



## PROFESSIONAL EXPERIENCE

**Regional Vice President, Mid-Atlantic (Jan 2022 – present)**

Veolia North America; New Jersey and Pennsylvania

**Area Manager (July 2018 – Dec 2021)**

SUEZ North America; Bayonne, NJ and Keamy, NJ

**Adjunct Instructor (Sept 2017 – present)**

Rutgers University; New Brunswick, NJ

**Director of Wastewater Operations (Mar 2015 – July 2018)**

Montgomery Township, NJ

**Assistant Operations Manager, East Region (July 2001 - Mar 2015)**

Envirogen Technologies, Inc.; Ewing, NJ/

Bigler Associates, Inc.; Lakewood, NJ

Mr. Kiernan is an experienced environmental professional with 20+ years in the water and wastewater management field. His experience includes expertise of diverse wastewater and remediation sites, executive management of water and wastewater treatment facilities and technical report preparation. He has extensive knowledge of New Jersey rules and regulations, as well as environment, health and safety policies and procedures.

## EDUCATION

M.S., Environmental Science, Rutgers University

B.S., Environmental Science, Richard Stockton College of New Jersey

## CERTIFICATIONS & PROFESSIONAL AFFILIATIONS

C-4 Wastewater Collection, NJ DEP, W-3 Water Distribution, NJDEP, T-2 Water Treatment

Operator, NJ DEP, S-4 Wastewater, NJDEP, N-4 Industrial, NJDEP

Certified Public Works Manager, NJ

Member, American Water Works Association

Member, New Jersey Water Environment Association

Member, Jersey Water Works



# NORTH AMERICA PRESENCE

**10,000+**

employees across  
US and Canada

**500+**

work sites



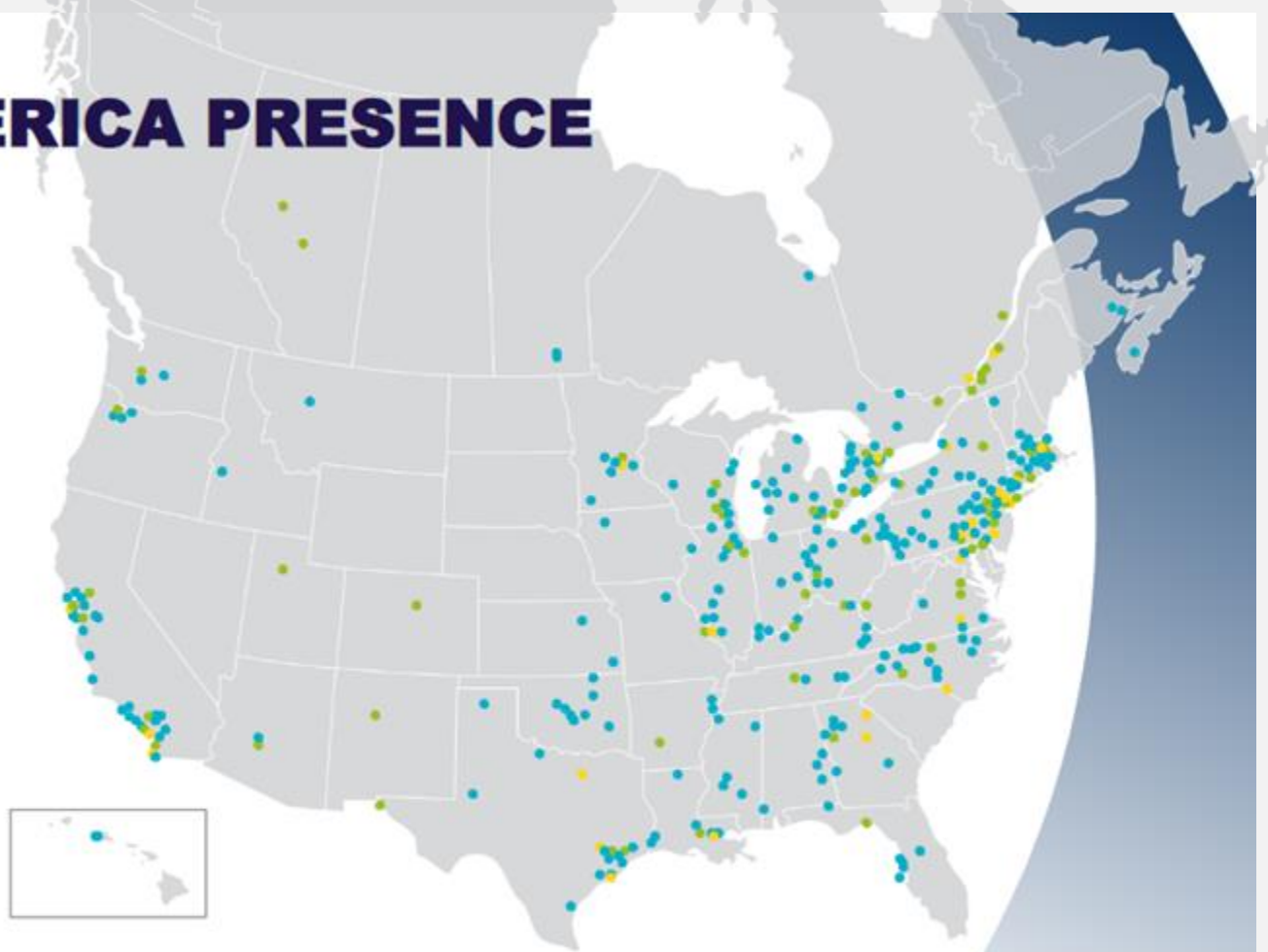
Water



Waste



Energy



# VEOLIA - NEW JERSEY



# COURSE SUMMARY

**01**

Water Workforce Utility  
Program

**02**

Course Overview &  
Goals

**03**

Career  
Opportunities

**04**

Introduction to Water &  
Wastewater Systems



# 01 Water Workforce Utility Program



# Water Workforce Utility Program

It is an 10-week, 75-hour-long program that introduces participants to a career in the water workforce.

Participants will be trained through both classroom and field experiences, and have the chance to be connected with utility companies for employment opportunities once they complete the program. This is also an Earn and Learn program.



Basic Skills, Career Exploration & Readiness



Introduction to OSHA and other measures of safety



**Water Industry Introduction:**  
Provide an understanding of the water industry and what career paths are available



Stipends of up \$1,300 will be distributed to participants




# Water Workforce Utility Program: Career Opportunities




**JERSEY WATER  
WORKS**



Smart infrastructure. Strong communities.

 [jerseywaterworks.org](http://jerseywaterworks.org)

 [info@jerseywaterworks.org](mailto:info@jerseywaterworks.org)

 [jerseywaterworks](https://www.facebook.com/jerseywaterworks)



# 02 Course Overview & Objectives

- *Your Instructors*
- *Course Agenda & Schedule*
- *Course Goals*



# Your Instructors



## Jason Kiernan

VP, Veolia (Mid-Atlantic, NJ)

- Utility Operations
- Water Treatment & Distributions
- Wastewater Collections Systems
- Operator Licenses
- Water Quality and Compliance



## John Libitz Sr

Project Manager, Veolia (Bayonne, NJ)

- Utility Operations
- Water Treatment & Distributions
- Wastewater Collections Systems
- Operator Licenses
- Enjoys Camping and Outdoor activities



## Richard Tecchio

Project Manager, Veolia (Jersey City, NJ)

- Utility Operations
- Water Treatment & Distributions



## Jaren Harrison

Assistant Project Manager, Veolia (Bayonne, NJ)

- Environmental Compliance
- Lead and Copper + UCMR Regulations



## Angelo Margiolas

Engineering Project Manager, Veolia (Bayonne, NJ)

- Mechanical Engineer
- Capital Projects
- New Development Reviews



## Course Agenda & Overview

Dates	Time	Subjects Covered	Quiz	Location
6/20/2024	5:30pm-7:30pm	Course Overview, Career Opportunities in Water Sector	No	HCCC (L305)
6/27/2024	5:30pm-7:30pm	Introduction to Water & Wastewater Systems	Yes	HCCC (L305)
7/4/2024	off	off	off	off
7/11/2024	5:30pm-7:30pm	Water Source & Water Treatment	No	HCCC (L305)
7/18/2024	5:30pm-7:30pm	Water Source & Water Treatment	No	HCCC (L305)
7/25/2024	5:30pm-7:30pm	Water Distribution Systems	Yes	HCCC (L305)
8/1/2024	5:30pm-7:30pm	Water Quality and Compliance	Yes	HCCC (L305)
8/8/2024	5:30pm-7:30pm	Wastewater & Collection Systems	Yes	HCCC (L305)
8/15/2024	5:30pm-7:30pm	Wastewater Treatment & Group Activities	No	HCCC (L305)
8/22/2024	5:30pm-7:30pm	Group Activities around Water & Wastewater Operations	No	HCCC (L305)
TBD	9am-12pm	Utility Tour of Jersey City Booton Reservoir & Treatment Facility	No	TBD



# Course Goals

Identify Potential  
Internship Opportunities

Learn About  
Licenses

Leave with  
Knowledge of  
Water &  
Wastewater in  
Communities

Pass this information on  
to friends & family

Take a Water Quality Sample





# 03 Career Opportunities



# Different Career Paths



LAW



MAINTENANCE & OPERATIONS

TECHNICIANS:

- Instrumentation
- Mechanic
- Electrician
- Machine Operator



GEOGRAPHIC INFORMATION  
SYSTEM  
(GIS)



DATA ANALYTICS



RESEARCH



ACCOUNTING &  
FINANCE



WATER TECH  
TREATMENT  
PLANT  
OPERATOR



CUSTOMER  
SERVICE



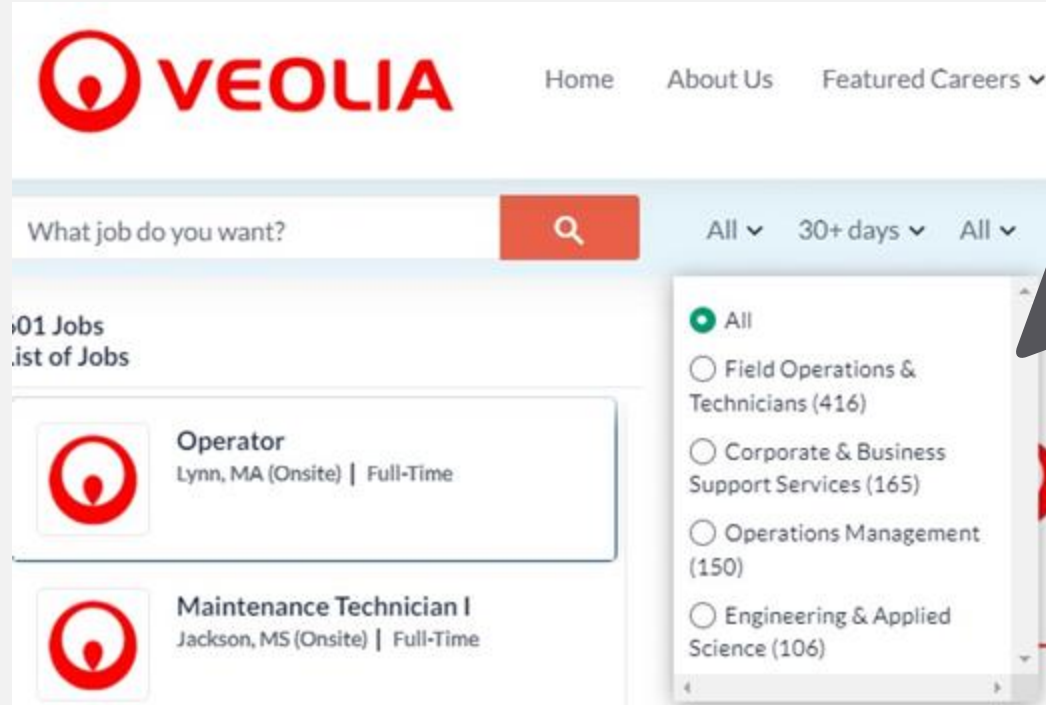
ENVIRONMENTAL  
SCIENTISTS &  
ENGINEERS



COMMUNICATIONS



## Different Career Paths: Current Career Opportunities



The screenshot shows the Veolia careers website. At the top left is the Veolia logo. To its right are navigation links: Home, About Us, and Featured Careers with a dropdown arrow. Below the logo is a search bar with the placeholder text "What job do you want?". To the right of the search bar is a red search icon. Further right are filters: "All" with a dropdown arrow, "30+ days" with a dropdown arrow, and "All" with a dropdown arrow. A dropdown menu is open from the first "All" filter, showing the following options: "All" (selected with a green dot), "Field Operations & Technicians (416)", "Corporate & Business Support Services (165)", "Operations Management (150)", and "Engineering & Applied Science (106)". Below the search bar, the text "101 Jobs" and "List of Jobs" is visible. Two job listings are shown: "Operator" in Lynn, MA (Onsite) | Full-Time, and "Maintenance Technician I" in Jackson, MS (Onsite) | Full-Time. Each listing has a small Veolia logo icon.

Over 800 jobs available in Veolia today!

[Link to American Water Works Association \(AWWA\) Career Site:](https://careercenter.awwa.org/)

<https://careercenter.awwa.org/>








[Link to Veolia Careers:](https://www.veolionorthamerica.com/careers)

<https://www.veolionorthamerica.com/careers>










# Different Career Paths: Current Career Opportunities








## Operations Roles

	<b>Sr. Data Analyst</b> Paramus, NJ (Onsite)   Full-Time
	<b>Control Systems Engineer</b> Paramus, NJ (Onsite)   Full-Time
	<b>GIS Administrator</b> Paramus, NJ (Onsite)   Full-Time
	<b>Senior Business Analyst - Hyb...</b> Paramus, NJ (Hybrid)   Full-Time
	<b>Manager, Performance</b> Paramus, NJ (Onsite)   Full-Time
	<b>Staff Accountant - Fixed Assets</b> Paramus, NJ (Onsite)   Full-Time
	<b>Project Director - Engineerin...</b> Paramus, NJ (Onsite)   Full-Time

## Engineering & Management Roles

	<b>Change Management Lead - P...</b> Paramus, NJ (Onsite)   Full-Time
	<b>Director of Contract Manage...</b> Paramus, NJ (Onsite)   Full-Time
	<b>Water Quality and Complianc...</b> Paramus, NJ (Onsite)   Full-Time
	<b>Manager, Performance</b> Paramus, NJ (Onsite)   Full-Time
	<b>Staff Accountant - Fixed Assets</b> Paramus, NJ (Onsite)   Full-Time
	<b>Project Director - Engineerin...</b> Paramus, NJ (Onsite)   Full-Time
	<b>Proposal Senior Manager</b> Paramus, NJ (Hybrid)   Full-Time

## Business Support Roles

	<b>Corporate Counsel, Regulate...</b> Paramus, NJ (Onsite)   Full-Time
	<b>Sr. Data Analyst</b> Paramus, NJ (Onsite)   Full-Time
	<b>Control Systems Engineer</b> Paramus, NJ (Onsite)   Full-Time
	<b>Sr. Director - Billing, Payment...</b> Paramus, NJ (Onsite)   Full-Time
	<b>Receptionist</b> Paramus, NJ (Onsite)   Full-Time
	<b>Change Management Lead - P...</b> Paramus, NJ (Onsite)   Full-Time
	<b>GIS Administrator</b> Paramus, NJ (Onsite)   Full-Time



# 04 Introduction to Water & Wastewater Systems

- *Where Your Water Comes From*
- *Water & Wastewater Intro*

# Introduction to Water Utilities

## Water utilities have 3 main jobs:

1. Oversee water found in lakes, rivers, and other places

### Watershed Management

1. Treat (or “clean”) water so that it is safe to drink and use

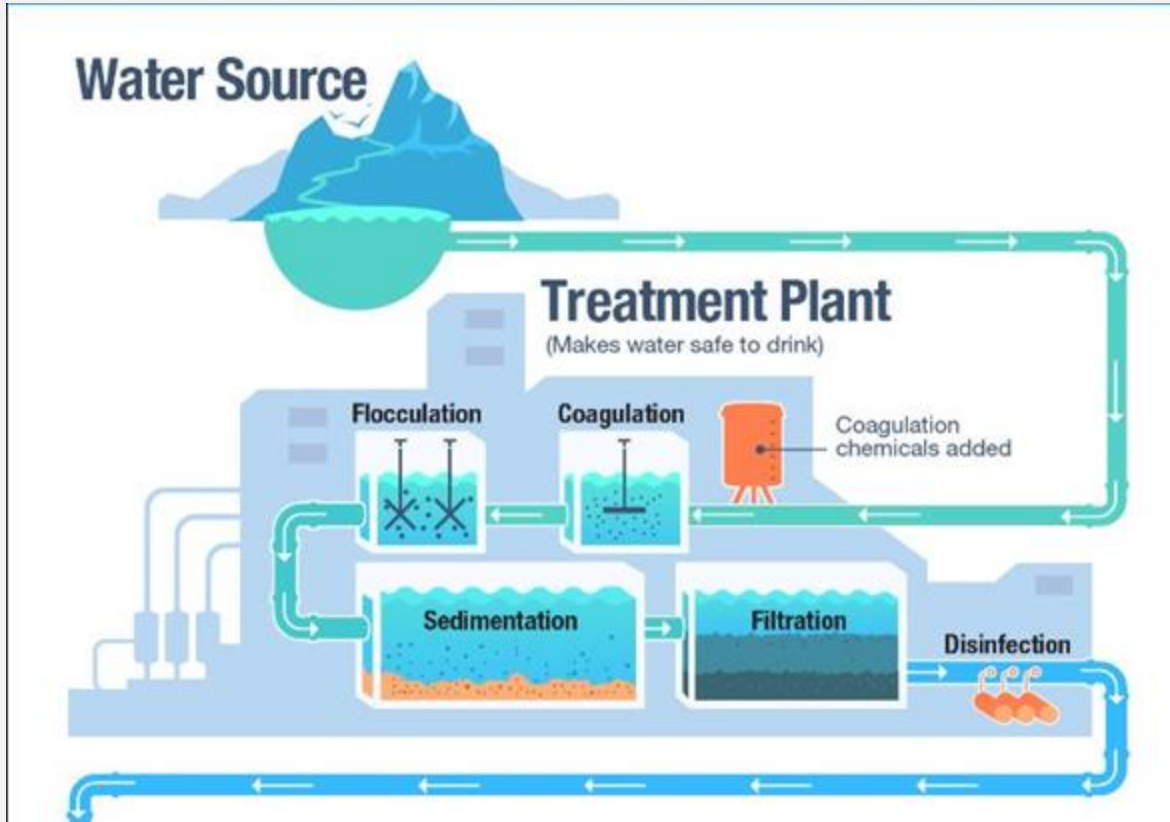
### Water Treatment

1. Send clean water to the public through water pipes

### Water Distribution



# Water Treatment Plants



# How Water Works: Distribution System Components & Activities

- Water Piping - Install / Test / Repair / Replace
- Hydrants - Install / Testing / Flushing / Maintain
- Valves - Install / Test / Operating / Maintain / Replace
- Service lines - Install / Test / Replace
- Meters - Install / Test / Measure / Replace
- Leak detection work
- Water Sampling - Compliance



# Water Distribution System Career Spotlight: Distribution Operator's

May be a good career for you if:

- You don't mind working outdoors
- You like to find out how things work and how to fix them
- You like variety in your work day
  - Working in a variety of locations
  - Solving Problems
  - Interacting with customers.
- Reading maps - GIS / GPS
- Operating digital platforms - CMMS
- The opportunity to work Overtime
- Responding to Emergencies
- Shift work (sometimes)



Top 3-4 Career Search Terms:

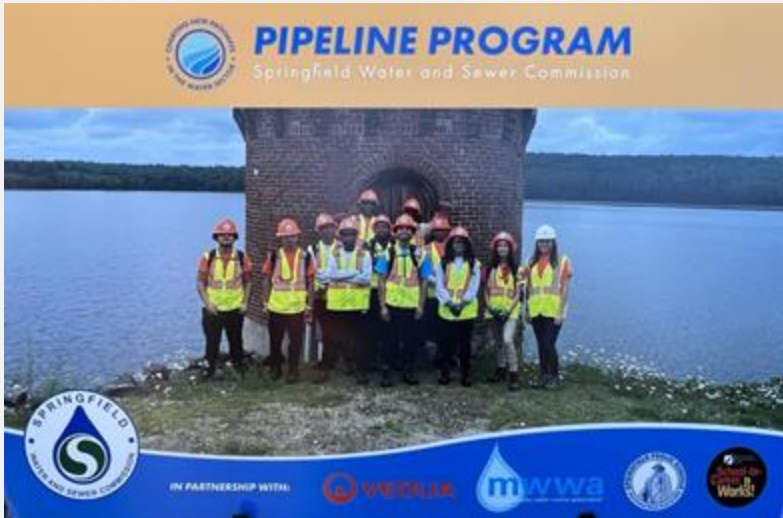


1. Water Distribution Utility Person
2. Water Distribution System Inspector
3. Water Distribution System Sample Collector.
4. Water Distribution System CSFR

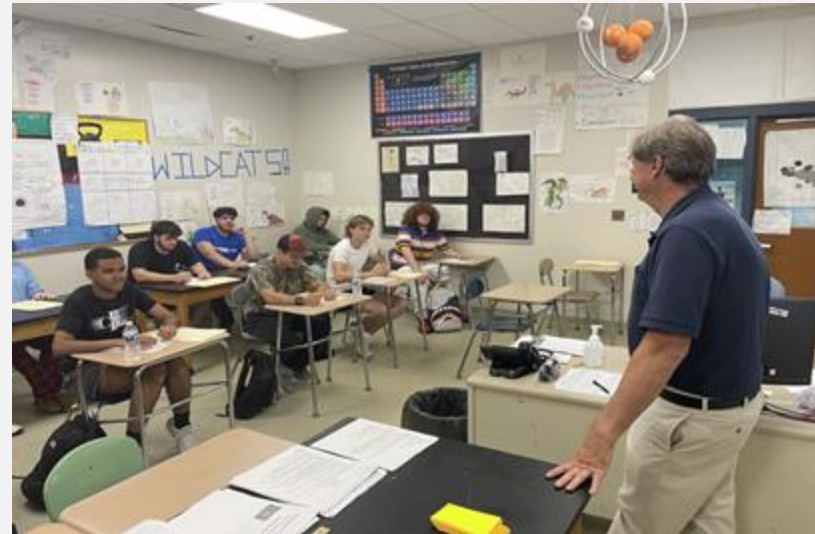


# Similar VNA Workforce Development Initiatives

## Springfield (MA) Pipeline Program: Summer Internship and Career Development



## Internships & Wastewater Classes in Connecticut High School Curriculum



| Q & A

