

WASTEWATER 101

Part 6

Who works in the wastewater sector?

**Wastewater Surveillance Program
Water Environment Federation**

**nwbe.org
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DISCLAIMER

Development and production of this material was made possible through funding from the US Centers for Disease Control and Prevention (CDC) to the Water Environment Federation (WEF) under Cooperative Agreement CK20-2003 (Improving Clinical and Public Health Outcomes through National Partnerships to Prevent and Control Emerging and Re-Emerging Infectious Disease Threats). This material is solely the responsibility of WEF and does not necessarily represent the official position of CDC.

WHY WASTEWATER UTILITIES EXIST

Wastewater utilities collect wastewater and then treat it to achieve permit limits designed to protect human health and aquatic life, before discharging the clean water into streams, rivers, lakes, coastal waters, and other receiving waters



CORE TASKS

**Maintaining &
upgrading
infrastructure**

**Ensuring
efficient &
safe system
operation**

**Demonstrating
compliance
with discharge
permit**

MAINTAINING & UPGRADING INFRASTRUCTURE

- Cleaning equipment, pipelines, and tanks
- Doing emergency repairs
- Managing infrastructure upgrades
- Performing electrical work
- Performing routine equipment maintenance
- Replacing equipment and pipe sections
- Using vactor trucks and hoses
- Working inside lift stations, manholes, and tanks



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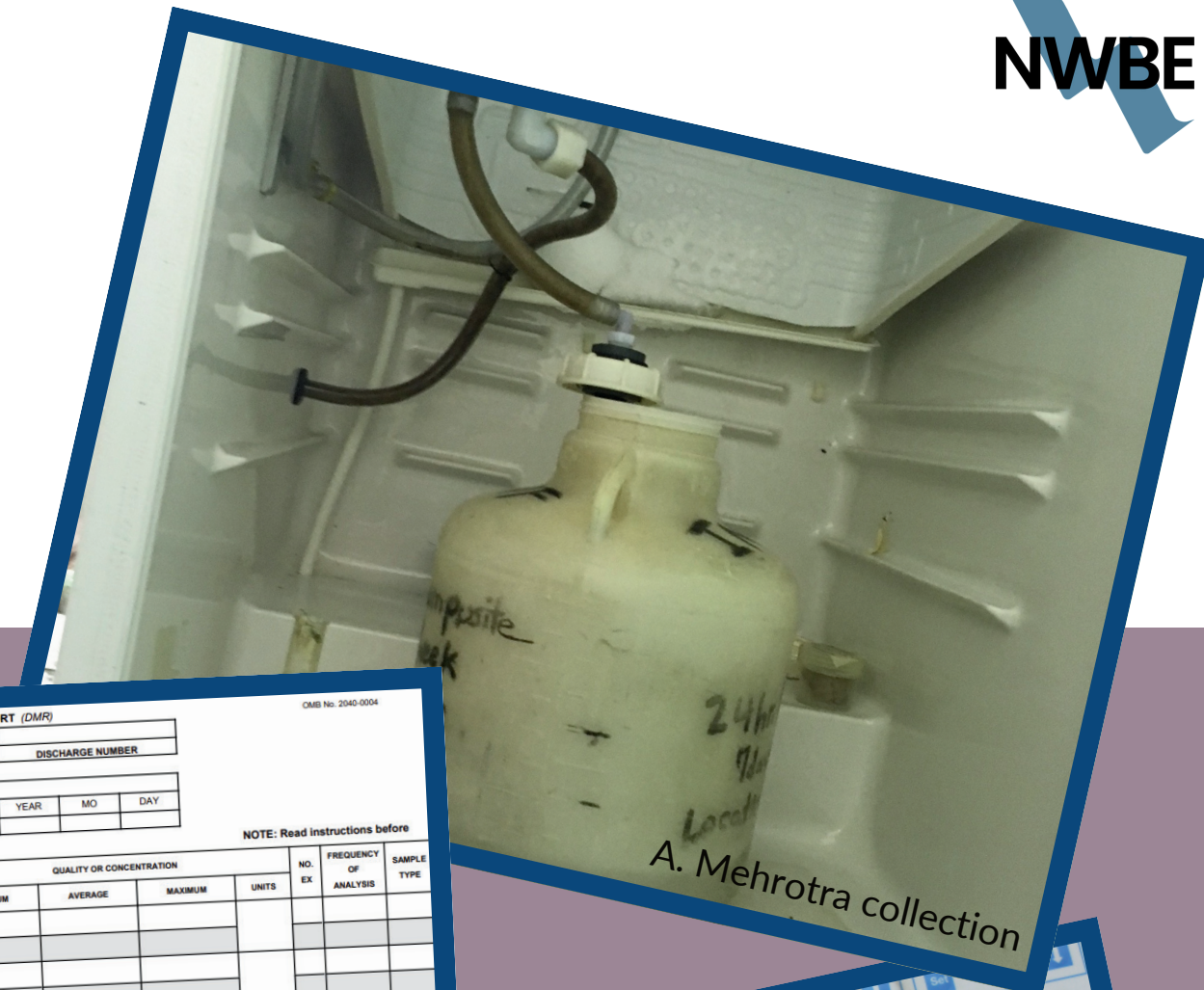
ENSURING EFFICIENT & SAFE SYSTEM OPERATION

- Adjusting chemical dose rates
- Adjusting motor speeds
- Adjusting valves
- Billing
- Collecting process control data
- Inspecting equipment
- Managing chemical deliveries
- Monitoring SCADA



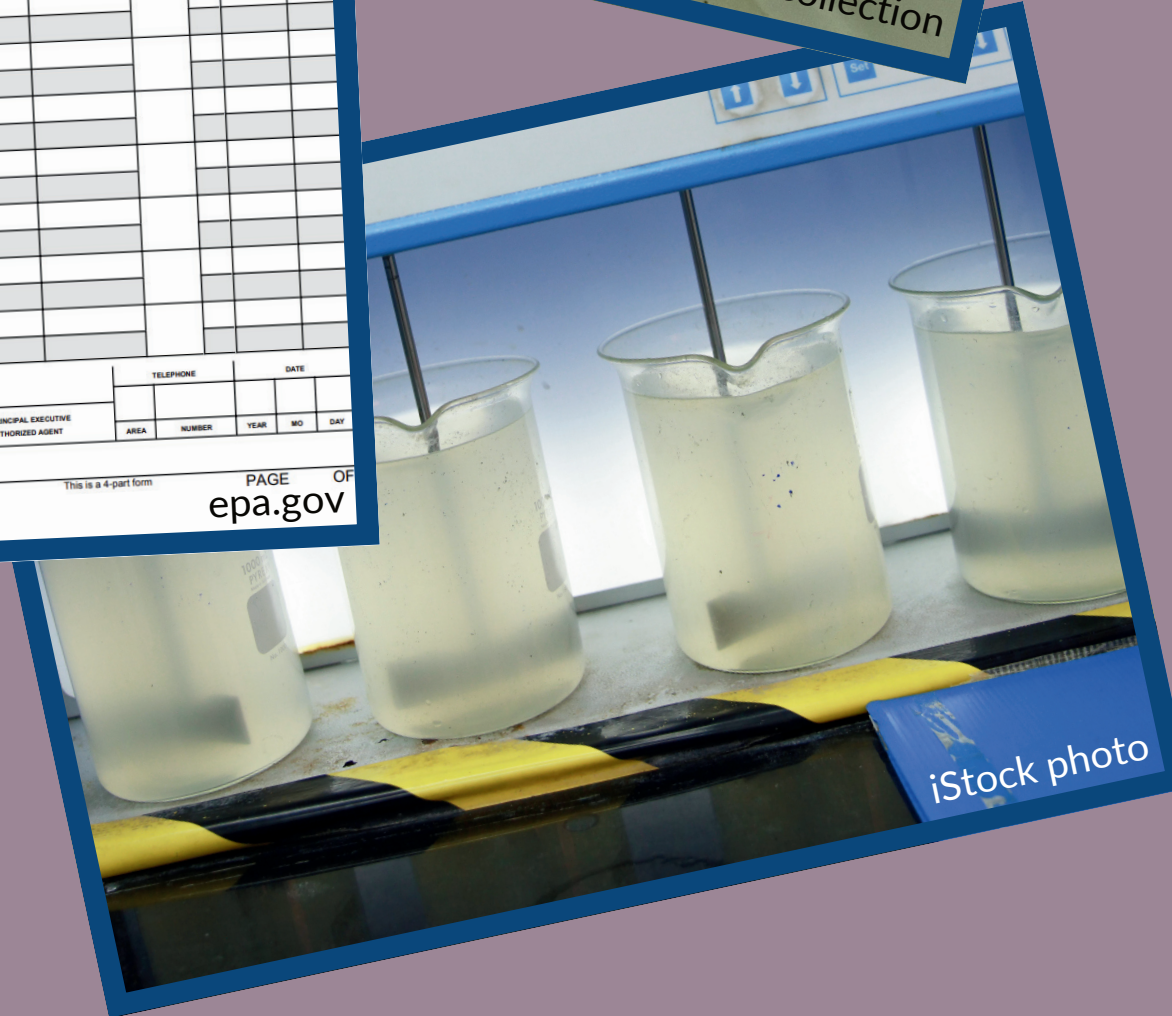
DEMONSTRATING COMPLIANCE WITH DISCHARGE PERMIT

- Collecting samples
- Running analyses in on-site lab
- Maintaining on-site lab
- Packaging samples for analysis at outside lab(s)
- Filling out monitoring report forms
- Reviewing draft permits
- Responding to inquiries from permitting authority



A. Mehrotra collection

PARAMETER	QUANTITY OR LOADING	QUALITY OR CONCENTRATION				NO. OF ANALYSES	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	UNITS		
SAMPLE							
PERMIT REQUIREMENT							
SAMPLE							
PERMIT REQUIREMENT							
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WASTEWATER PROFESSIONAL ROLES

Accountants

Collection system operators

Controllers

Customer service representatives

Electricians

Engineers

GIS specialists

Human resources specialists

Laboratory technicians

Lawyers

Machinists

Managers

Plumbers

Procurement specialists

Public affairs specialists

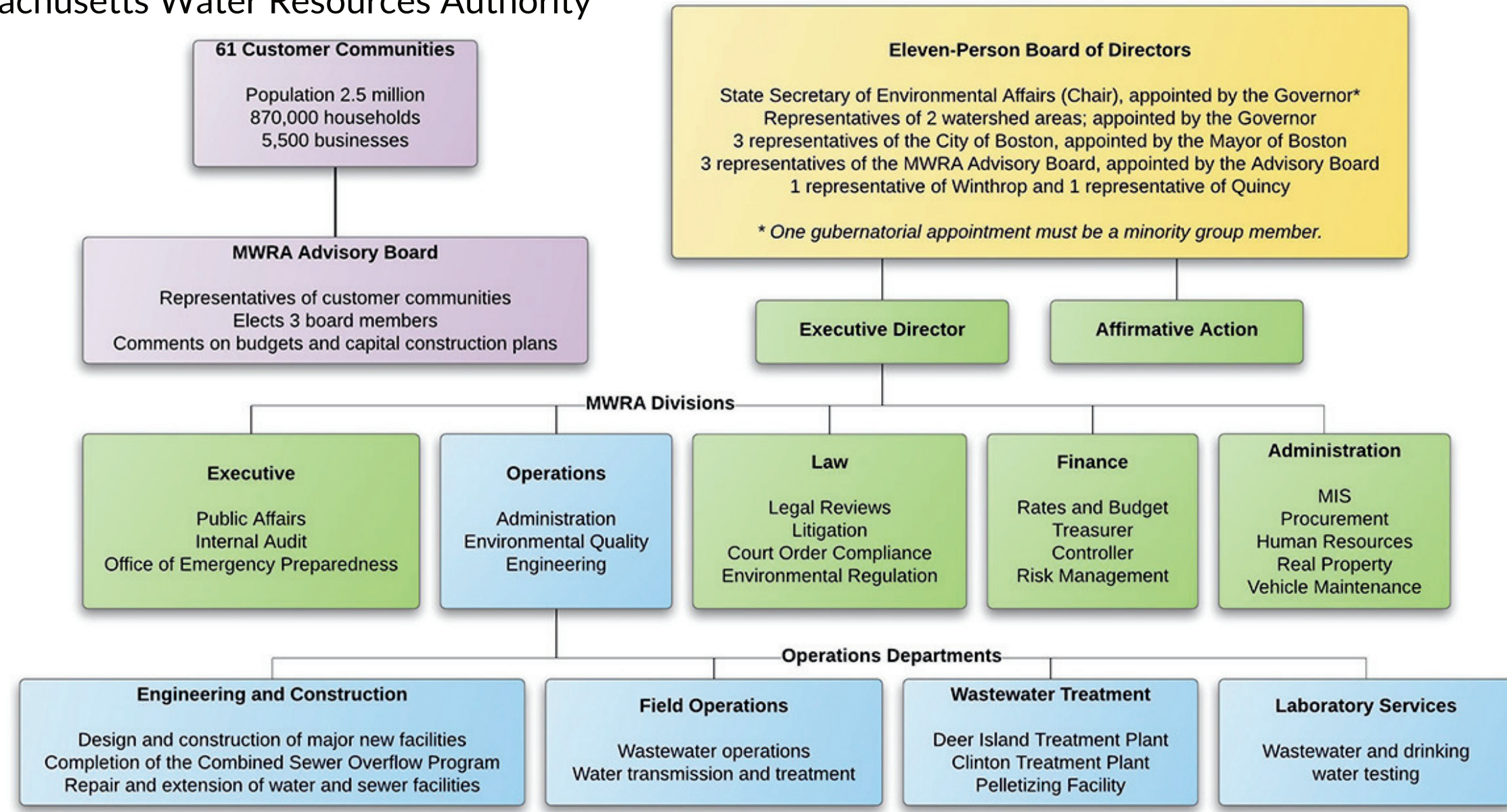
Regulatory affairs specialists

Treatment system operators

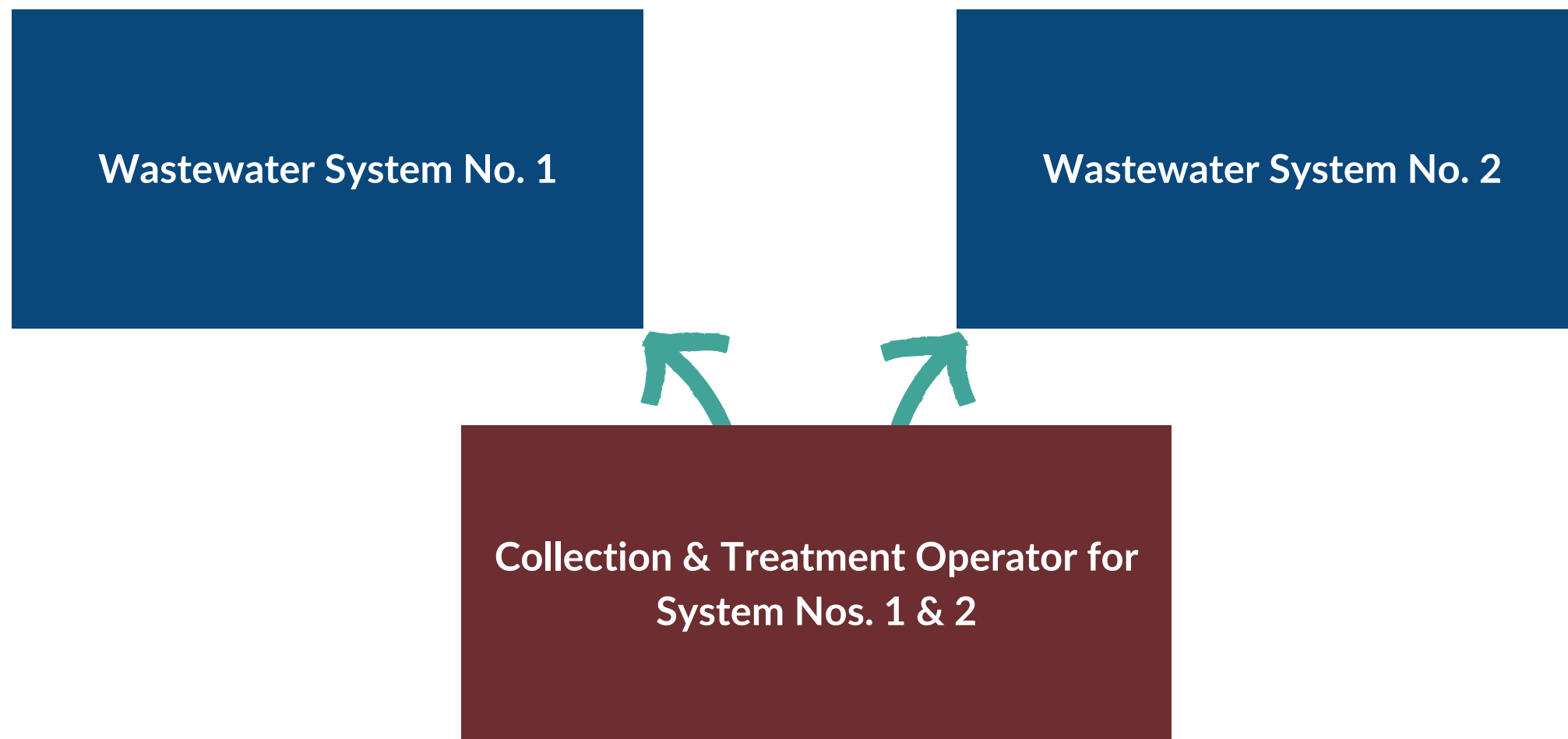
Vehicle maintenance specialists

EXAMPLE ORG CHART FROM LARGE WASTEWATER ORGANIZATION

Massachusetts Water Resources Authority



EXAMPLE ORG CHART FROM TWO SMALL SYSTEMS







WASTEWATER SURVEILLANCE COMMUNICATION AT A LARGE UTILITY

Metropolitan Water Reclamation District (MWRD) Department	Number of Positions in Communication Loop	Wastewater Surveillance Program Role
Monitoring & Research	30	Day-to-day management
Maintenance & Operations	40	Sample collection and metadata documentation
Engineering	5	GIS and map support
Procurement	5	Sample kit receipt and management
General Administration	30	Commissioners and public affairs
Human Resources	7	Safety
Finance, Law, & Treasury	3	Reference for FOIA

Total number of positions
in communication loop for
wastewater surveillance
program:
120

SOME NUMBERS

119,350

**Water and wastewater treatment plant
and system operators**

Source:
Occupational Employment and Wage Statistics,
US Bureau of Labor Statistics, May 2022

478,700

**Employment in industries related to water
utilities—including local government
utilities (both water and energy utilities);
water, sewage, and other systems; and
water and sewer system construction**

Source:
US Bureau of Labor Statistics, December 2016;
quoted by GAO in Water and Wastewater Workforce
(GAO-18-102), January 2018



WHAT TO ASK YOUR UTILITY PARTNERS

- How many operators do you have on staff?
- How many dedicated lab staff do you have?
- Do you have any dedicated GIS staff?
- Who else in your organization should be part of any email communication about our program?
- Who else in your organization should be part of any ongoing program meetings?

RESOURCES FOR WASTEWATER PROFESSIONALS



*Water and Wastewater
Treatment Plant & Systems
Operators at
[bls.gov](https://www.bls.gov)*



*Water and Wastewater
Workforce at
[gao.gov/products/gao-18-102](https://www.gao.gov/products/gao-18-102)*



*Careers in water at
[workforwater.org](https://www.workforwater.org)*



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This was Part 6 of WASTEWATER 101: Who works in the wastewater sector?

Other parts in the series include:

Part 1: What is wastewater?

Part 2: How is wastewater collected?

Part 3: How is wastewater treated?

Part 4: Where does treated water go?

Part 5: How is water quality monitored?

Thank you!