

## Water and Liquid Waste Treatment Plant and System Operators

- Employment is concentrated in local government and water, sewage, and other systems utilities.
- Because of expected much faster than average employment growth and a large number of upcoming retirements, job opportunities will be excellent.
- Completion of an associate degree or a 1-year certificate program in environmental studies or a related field may help applicants to find jobs and advance more quickly.

▲ TAGS: Benefits  
 Hazardous  
 Little/No Interaction  
 Education Requirements  
 Irregular Hours  
 Salary  
 Primarily Outdoors  
 Physical  
 Positive Outlook

### NATURE OF THE WORK

Water is one of our society's most important resources. While most people take it for granted, it takes a lot of work to get water from natural sources—reservoirs, streams, and groundwater—into our taps. Similarly, it is a complicated process to convert the wastewater in our drains and sewers into a form that is safe to release into the environment. Water treatment plant and system operators run the equipment, control the processes, and monitor the plants that treat water so that it is safe to drink. Liquid waste treatment plant and system operators do similar work to remove pollutants from domestic and industrial waste.

Fresh water is pumped from wells, rivers, streams, and reservoirs to water treatment plants, where it is treated and distributed to customers. Used water, also known as wastewater, travels through sewage pipes to treatment plants where it is treated and either returned to streams, rivers, and oceans, or reused for irrigation. Operators in both types of plants control equipment and monitor processes that remove or destroy harmful materials, chemicals, and microorganisms from the

water. They also run tests to make sure that the processes are working correctly and keep records of water quality and other indicators.

Water and wastewater treatment plant operators operate and maintain the pumps and motors that move water and wastewater through filtration systems. They monitor the indicators at their plants and make adjustments as necessary. They read meters and gauges to make sure that plant equipment is working properly. They take samples and run tests to determine the quality of the water being produced. At times, they may adjust the amount of chemicals, such as chlorine and fluorine, being added to the water.

The specific duties of plant operators depend on the type and size of the plant. In a small plant, one operator may be responsible for maintaining all of the systems. This operator would most likely work during the day and be on call during nights and weekends. In medium-size plants, operators may work in shifts to monitor the plant at all hours of the day. ►

Occasionally, operators must work during emergencies. Weather conditions may cause large amounts of storm water and wastewater to flow into sewers, exceeding a plant's capacity. Emergencies also may be caused by malfunctions within a plant, such as chemical leaks or oxygen deficiencies. Operators are trained in emergency management procedures and use safety equipment to protect their health, as well as that of the public.

Both tap water and wastewater are highly regulated by the U.S. Environmental Protection Agency. Plant operators must be familiar with these regulations and ensure that their high standards are met. Operators are also responsible for keeping records that document compliance and for being aware of new regulations that are enacted.

## WORK ENVIRONMENT

Water and wastewater treatment plant and system operators work both indoors and outdoors and may be exposed to noise from machinery and to unpleasant odors. Operators' work is physically demanding and often is performed in locations that are difficult to access or unclean. They must pay close attention to safety procedures because of the presence of hazardous conditions, such as slippery walkways, dangerous gases, and malfunctioning equipment. As a result, operators have a higher-than-average occupational injury rate.

Plants operate 24 hours a day, 7 days a week. In small plants, operators may work during the day and be on call in the evening, at night, and on weekends. Medium-size and large plants that require constant monitoring may employ workers in three 8-hour shifts. Because larger plants require constant monitoring, weekend and holiday work is generally required. Operators may be required to work

## TRAINING/QUALIFICATIONS/ ADVANCEMENT

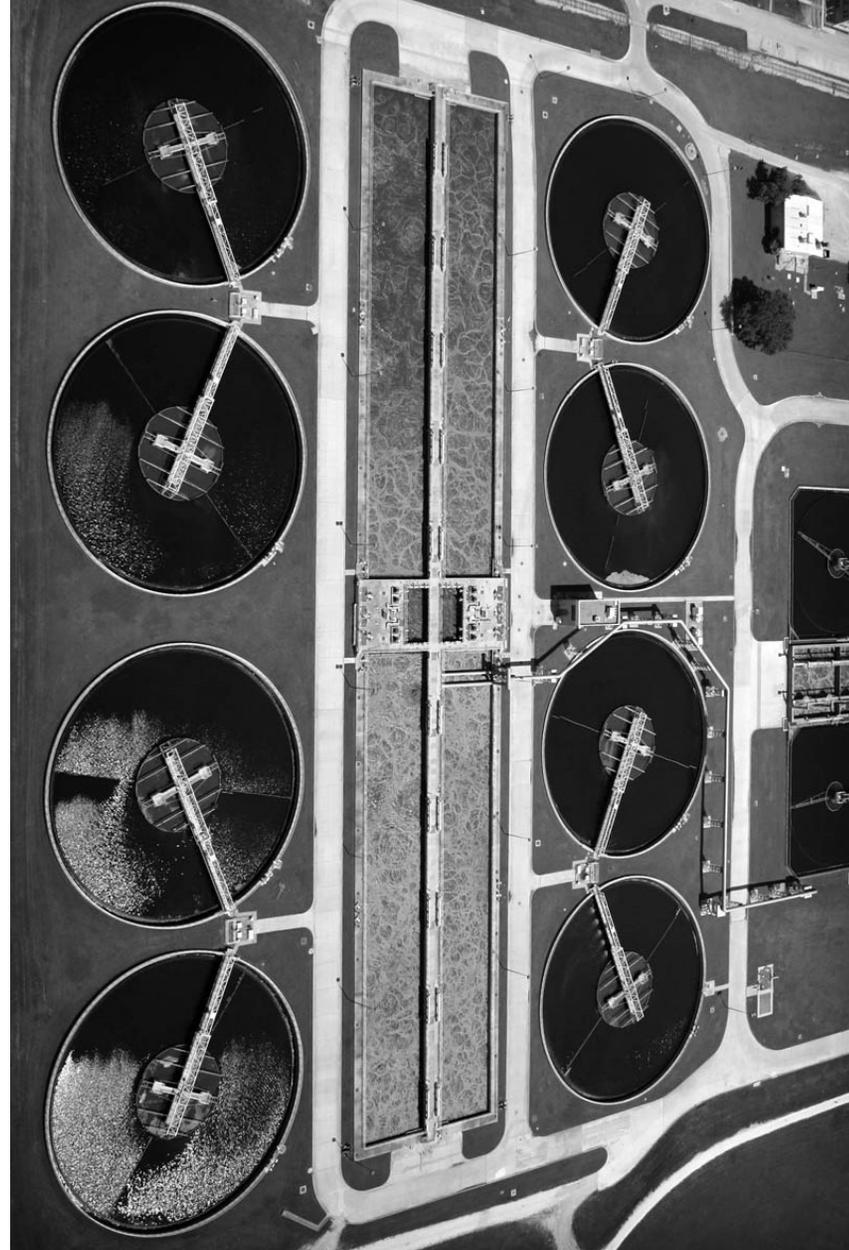
Employers usually hire high school graduates who are trained on the job. Completion of a training program may enhance an applicant's competitiveness in the job market.

Education and training. A high school diploma is usually required for an individual to become a water or wastewater treatment plant operator. Some applicants complete certificate or associate degree programs in water-quality and wastewater-treatment technology. Employers prefer to hire such candidates, because completion of a program minimizes the training needed at the plant and also shows a commitment to working in the industry. These programs are offered by community colleges, technical schools, and trade associations, and can be found throughout the country. In some cases, a degree or certificate program can be substituted for experience, allowing a worker to become licensed at a higher level more quickly.

Trainees usually start as attendants or operators-in-training and learn their skills on the job under the direction of an experienced operator. They learn by observing and doing routine tasks such as recording meter readings, taking samples of wastewater and sludge, and performing simple maintenance and repair work on pumps, electric motors, valves, and other plant equipment. Larger treatment plants generally combine this on-the-job training with formal classroom or self-paced study programs.

Licensure and certification. Both water and liquid waste plant and system operators must be certified by their States. Requirements and standards vary widely depending on the State. Most States have four different levels of certification, depending on the operator's experience and training. Although some States will honor licenses from other States, operators who move may have to take a new set of exams to become certified in a different State. The Association of Boards of Certification (ABC) offers a certificate program that may be helpful for operators who plan to move to a different State.

Other qualifications. Water and wastewater treatment plant operators need mechanical aptitude and the ability to solve problems intuitively. They also should be competent in basic mathematics, chemistry, and biology. They must have the ability to apply data to formulas that determine treatment requirements, flow levels, and concentration levels. Some basic familiarity with computers also is necessary, because



Benefits	No Benefits
Hazardous	Not Hazardous
Interaction	Little/No Interaction
Education Requirements	None Specified
Irregular Hours	Regular Hours
Hourly Wage	Salary
Primarily Indoors	Primarily Outdoors
Physical	Sedentary
Postive Outlook	Negative Outlook

Benefits			
Hazardous			
	Little/No Interaction		
Education Requirements			
Irregular Hours			
	Salary		
	Primarily Outdoors		
Physical			
Postive Outlook			