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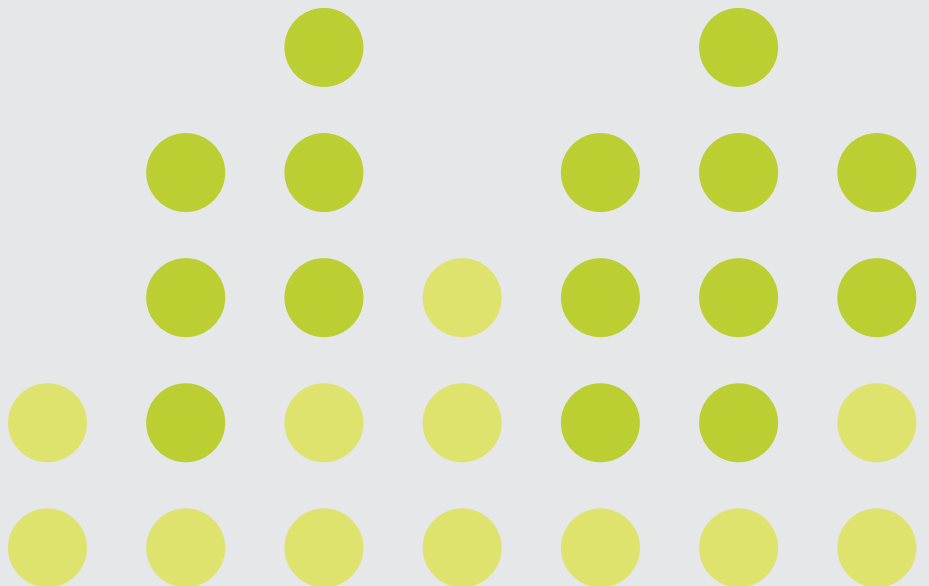
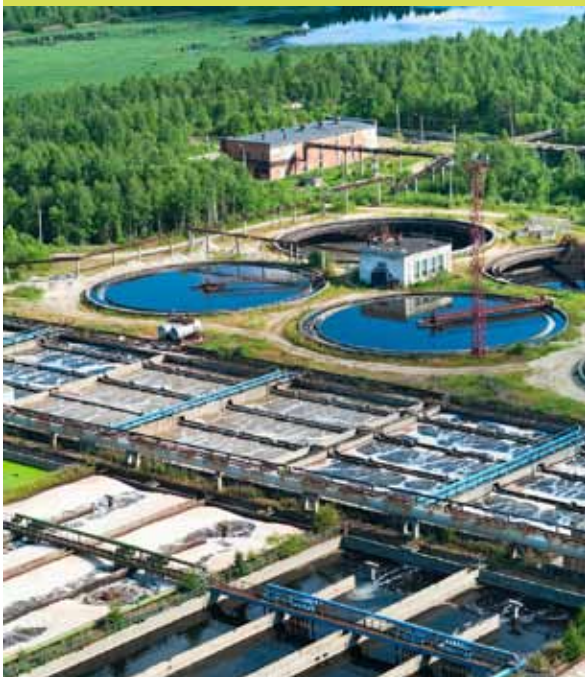
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Industry Snapshot Tools for Program Developers *Water and Wastewater Occupations*

San Francisco Bay Area:
San Mateo, Santa Clara, San Francisco, Alameda,
Contra Costa, and Marin counties

This data was prepared for California Community Colleges and those professionals that design college-level coursework and programs.



■ Industry Background

Rarely do we stop to think about turning on our tap, taking a drink from a water fountain or washing our hands at work and yet, the availability of water is at the heart of our social and economic stability. Clean drinking water is vital to our public health and quality of life and a safe, reliable water source is a key factor in the success of nearly all parts of our economy. Over the past several decades, the federal government has approved two major statutes to regulate our nation's water supply. These include the Safe Drinking Water Act which establishes standards for drinking water and the Clean Water Act which limits the discharge of pollutants. In California, nine major agencies are involved in managing water systems and ensuring state compliance with these regulations.

Two primary agencies deal with related workforce regulation and certification including the Department of Public Health's Division of Drinking Water and Environmental Management, which focuses on drinking water treatment and distribution, and the State Water Resources Control Board, which focuses on wastewater collections and treatment. Public awareness has driven these legislative responses to water standardization as consumers express growing interest in improved water quality. In turn, regulation is increasingly stringent and this atmosphere has significant implications for the water workforce. Moreover, increased consumption coupled with water shortages in particular regions like the Bay Area, which some connect to climate change, are driving conservation movements and requiring new approaches to water management for many districts and utilities across the nation. Given these public health and environmental concerns, employment in the water industry is increasingly viewed as a "green" occupation contributing directly to the stewardship of one of our most vital natural resources.

Maintaining our state's water system depends heavily on an adequate and prepared workforce. Local water and wastewater utilities are keenly aware of this issue and are aggressively strategizing to address their current and future workforce needs.

A majority of employment related to water and wastewater collections, treatment and distribution is concentrated in local government and private water, sewage and others systems utilities. To better understand how this workforce functions, recognizing the difference between water and wastewater systems is useful.

Water is generally pumped from natural sources such as wells, rivers, streams and reservoirs to water treatment plants, treated and distributed to consumers. Wastewater usually travels through sewage pipes to treatment plants where it is treated and returned to streams, rivers, or other natural sources or used for irrigation and landscaping. In California, there are approximately 1,200 water districts that perform these services.



■ Industry Trends

Like many industries, water and wastewater agencies are confronting a series of changes to their workforce at the same time they are managing an evolution in the way they perform and deliver their services. A 2006 Water Research Foundation study highlighted the following four key factors impacting the industry's workforce:

- Baby boomer retirements
- Employment growth in the water supply and sanitary services sector due to regulations, infrastructure growth, security, and customer demands
- Increased complexity of work (e.g. changing water quality and environmental regulations, technologies, facilities and processes)
- Shrinking pool of available, technically skilled and trained workers

In water and wastewater operations, seven critical occupations were selected for further study because (1) their work is essential to reliable water and wastewater operations and (2) there were concerns about whether sufficient numbers of qualified candidates would be available to fill upcoming vacancies. The segment of the workforce profiled here is primarily the technician level occupations that are most closely aligned with community college education programs, as opposed to professional level occupations (that are also employed by utilities/agencies).

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Regional Snapshot

The table below details these occupations and their growth potential in 45 agencies in the six-county San Francisco Bay region. More detailed occupational information is available in the complete environmental scan (see Appendix D) at www.coecc.net/water.

| Water and Wastewater Occupations | 2009 Employment | 3-year Growth Rate (total new job growth) | Eligible to Retire in 3 years (replacement rate) | New & Replacement Jobs (3 years total) | Apprentice level Wage Range (est. annual salary) |
|---|-----------------|---|--|--|--|
| Water Treatment Operator | 238 | 2% | 33% | 80 | \$52,900-\$67,300 |
| Water Distribution Operator | 202 | 1% | 21% | 43 | \$47,100-\$59,700 |
| Wastewater Treatment Operator | 433 | 4% | 42% | 191 | \$50,100-\$62,700 |
| Wastewater Collections Operator | 212 | 9% | 24% | 69 | \$47,800-\$58,300 |
| Mechanic/Machinist | 229 | 3% | 33% | 79 | \$48,700-\$60,400 |
| Electrician/Electrician Technician | 126 | 1% | 35% | 42 | \$42,000-\$53,200 |
| Electronic Maintenance Technician/ Instrument Technician | 134 | 6% | 34% | 51 | \$47,500-\$58,600 |
| TOTAL | 1575 | 4% | 32% | 555 | |

Source: U.S. Department of Labor, Bureau of Labor Statistics, www.bls.gov.

Educational Track

| COLLEGE | Water/Wastewater Occupations | | | | | | |
|---------------|------------------------------|-----------------------------|-------------------------------|---------------------------------|--------------------|------------------------------------|---|
| | Water Treatment Operator | Water Distribution Operator | Wastewater Treatment Operator | Wastewater Collections Operator | Mechanic/Machinist | Electrician/Electrician Technician | Electronic Maintenance Technician/Instrument Technician |
| | Training Programs | | | | | | |
| Alameda | | | | | | | |
| Contra Costa | | | | | | | |
| Marin | | | | | | | |
| San Francisco | | | | | | | |
| San Mateo | | | | | | | |
| Santa Clara | | | | | | | |

■ Conclusion

The need may be somewhat modest in size but there will be employment opportunities for students in the short term due to retiring workers from this industry. Regional colleges should respond to documented employer workforce needs in a coordinated and flexible manner. When surveyed, more than 50% of employers indicated that they are having difficulty hiring qualified candidates for all seven occupations, and 80% of employers indicated particular difficulty in hiring Electricians/Electrician Technicians and Electronic Maintenance Technicians/Instrument Technicians.

Many of the college courses and programs that will be needed for the three maintenance/operations support occupations are in place. However, there appears to be some need for course and/or program development to more fully meet the water/wastewater operator workforce needs of employers, particularly in the South Bay counties. Partnerships must be built between community colleges and utilities/agencies to prepare students for these specific occupations in this industry.

Perhaps the hardest challenge to address going forward will be the creation of internship and apprenticeship opportunities, so that classroom learning can be supplemented by the on-the job experience needed. Right now utilities do not have the funding to create new positions for people who are not at journey level and ready to provide full value. Grant funding from sources like the Department of Labor would need to cover not only community college coursework but also funding for these internship and apprenticeship opportunities. A combination of community college efforts, union apprenticeships and utility internships/apprenticeships may all be needed to give prospective workers the “in-plant” experience needed to be qualified to fill open positions.

Students or workers looking for an industry with good paying jobs that offers career advancement opportunities should consider this sector. It is an industry the public depends on because of its importance to the basic infrastructure of our communities. In addition, these occupations could be considered environmental and/or green jobs as they contribute directly to the stewardship of one of our most vital natural resources.

■ Recommendations

Wastewater Occupations

- Develop a measured, flexible and coordinated response to the workforce development needs of regional water and wastewater utilities/agencies.
- Build on the contract education model provided through Solano Community College to offer ongoing training.
- Establish an additional community college credit program, focusing on the South Bay counties, in order to meet the projected need for workers.
- Focus on raising students', educators' and parents' awareness about the current role of water and wastewater operators as “green collar knowledge workers” with access to excellent career advancement opportunities.

Maintenance/Operations Support Occupations

- Raise awareness of career opportunities in water and wastewater utilities/agencies for individuals enrolled in programs related to the electrician/electronic maintenance technician and mechanic/machinist positions.
- Create and expand industry partnerships.
- Provide on-going professional development for college faculty.

