

A blue-tinted photograph of industrial machinery, possibly a water treatment plant, featuring large pipes and valves.

# Workforce Planning

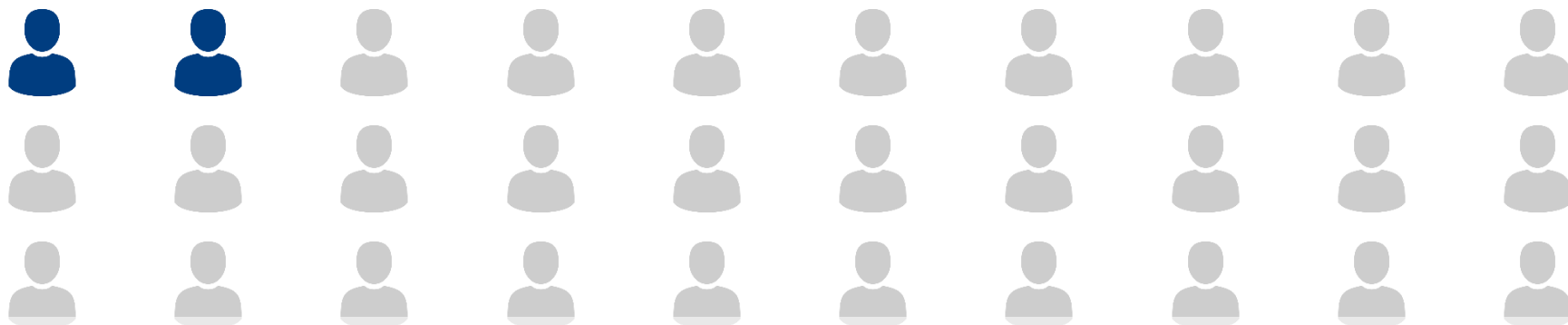
Glenn Barnes

Environmental Finance Center

The University of North Carolina at Chapel Hill

919-962-2789

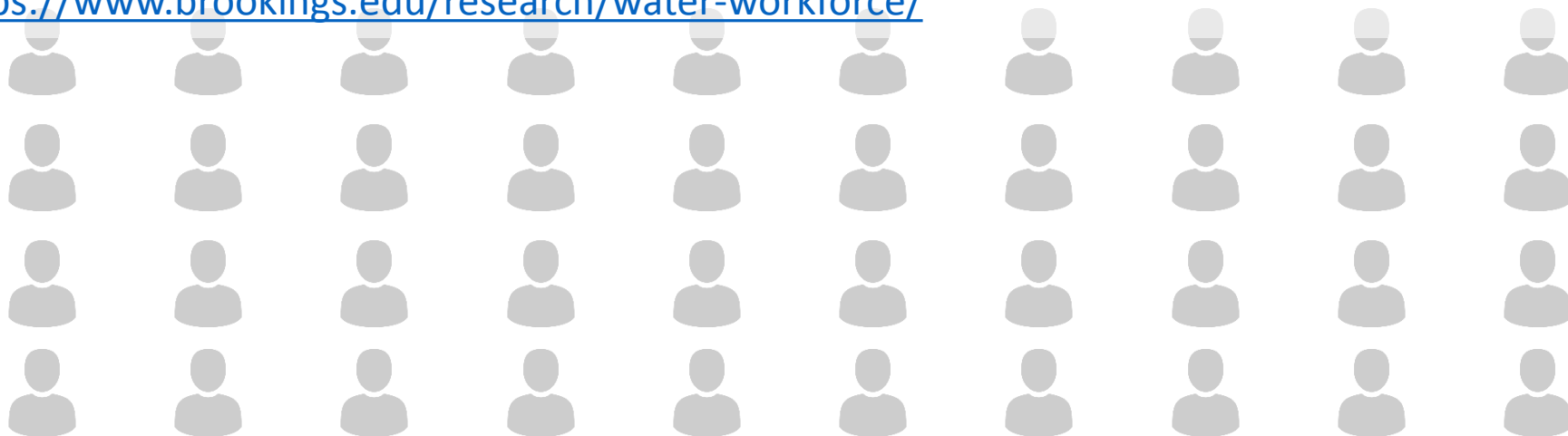
[glennbarnes@sog.unc.edu](mailto:glennbarnes@sog.unc.edu)



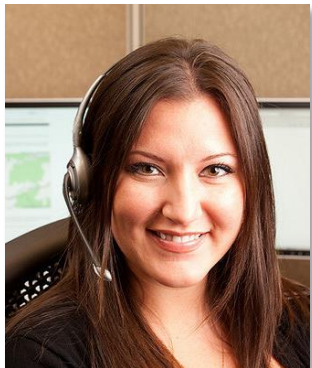
There are about 1.7 million Americans employed in **water-related jobs**, out of a total workforce of about 153 million people

Source: Renewing the Water Workforce Report and Bureau of Labor Statistics data

<https://www.brookings.edu/research/water-workforce/>



# Water Workforce



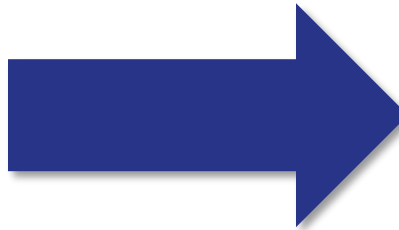
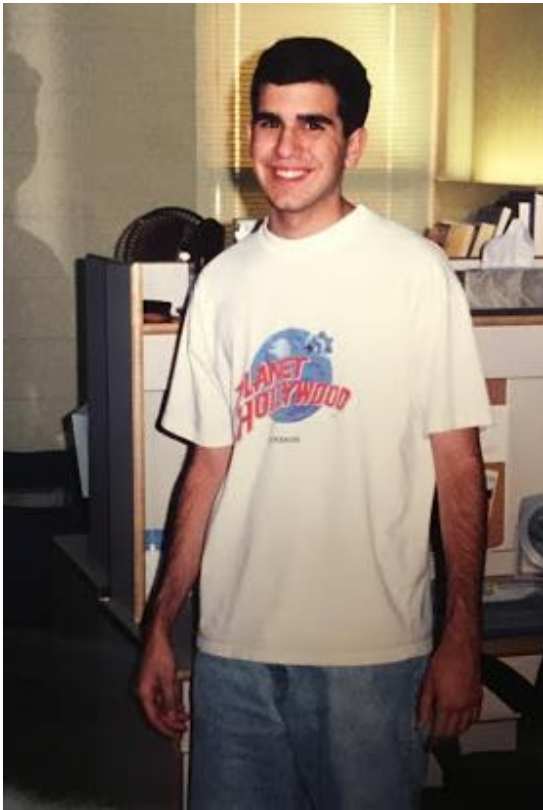


# 212

Different water-related occupations, from water operators to positions in the skilled trades like electricians and technicians to financial, administrative, and management positions



# Workforce Wears Out



And there is no fixing your  
workforce with duct tape...





Who will replace your best colleagues when they leave?

Who will replace you?



# By another name...

- Human Capital Management
- Or Asset Management for your staff





# Two Major Workforce Goals

- Keep your best people around as long as you can
- Bring in great new people to the organization



# Who Works in Water

- All of us “work in water”
- How did you get into the water business? What is your story?



# Workforce Development Process

- Review your workforce
- Keep your best people
- Identify who's leaving
- Consider changes in your needs
- Analyze skill gaps
- Find new people

A blue-tinted photograph of industrial machinery, possibly a conveyor system or manufacturing equipment, serves as the background for the top portion of the slide.

# Workforce Development Process

## ✓ **Review your workforce**

- Keep your best people
- Identify who's leaving
- Consider changes in your needs
- Analyze skill gaps
- Find new people





# Who Works in Water

What people within your organization work in water?

Your inventory of personnel is very similar to your inventory of assets in asset management

A blue-tinted photograph of industrial machinery, possibly a large pipe or valve, serves as the background for the top portion of the slide.

# Workforce Development Process

- Review your workforce
- ✓ **Keep your best people**
- Identify who's leaving
- Consider changes in your needs
- Analyze skill gaps
- Find new people



What makes you want to stay in your job?

# Asset Management Can Help



Larry Covington · Picacho MDWCA



But no matter how good you are  
at succession planning...

Your  
employees  
will leave,  
eventually.

Guaranteed.





# Workforce Development Process

- Review your workforce
- Keep your best people
- ✓ **Identify who's leaving**
- Consider changes in your needs
- Analyze skill gaps
- Find new people

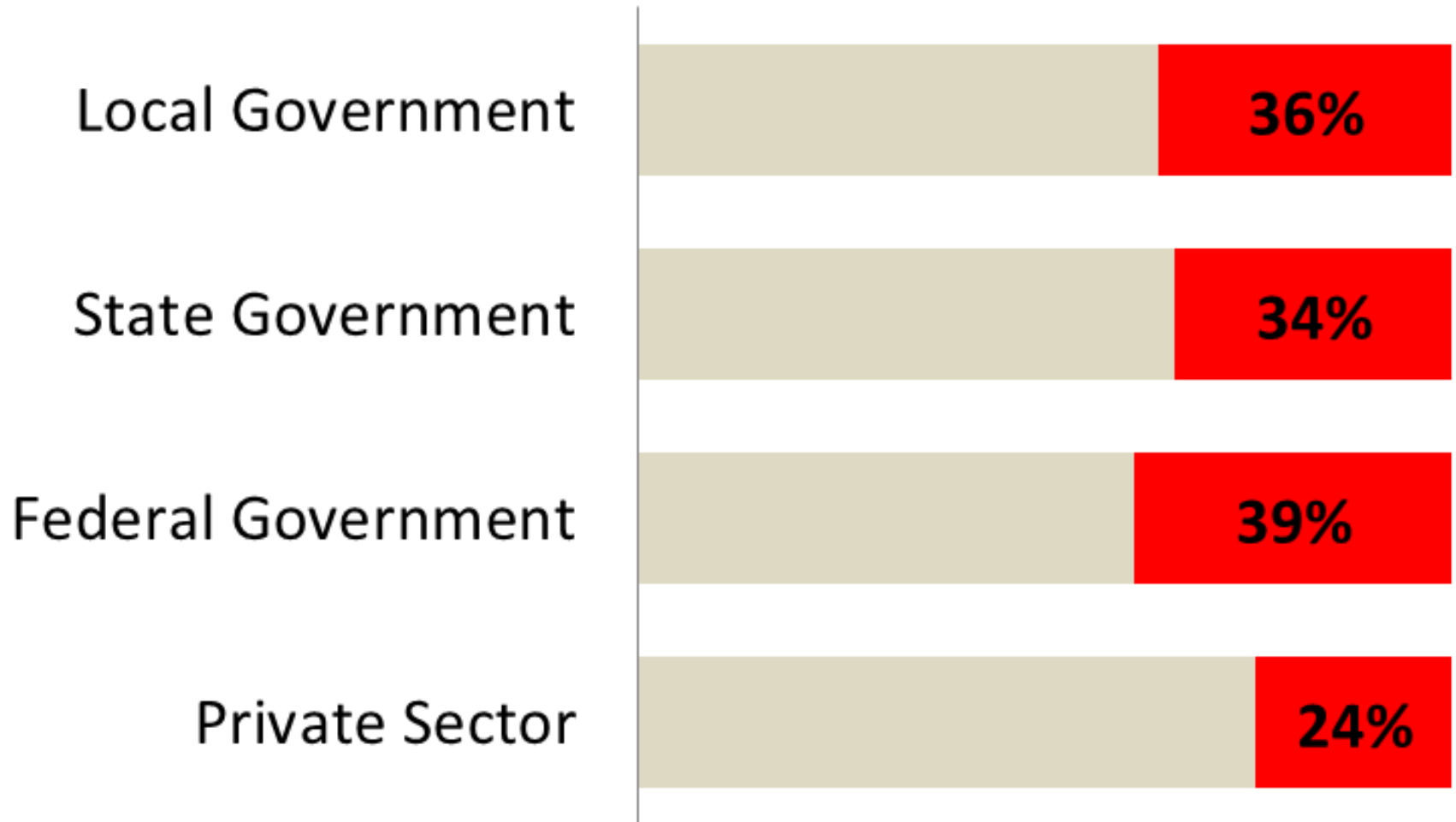
# Are you ready for people to leave?

- Retirement





# Many U.S. workers are **aged 50+**





# Are you ready for people to leave?

- Retirement
- Leaving for a different job
- FMLA
- Other circumstances...





# Who Works in Water

- You know who within your organization works in water
- How critical are these people to your operations? How easy will it be to replace them?

# Human Capital Criticality





# Workforce Development Process

- Review your workforce
- Keep your best people
- Identify who's leaving
- ✓ **Consider changes in your needs**
- Analyze skill gaps
- Find new people





# What knowledge, skills and abilities are needed today?

- Think across the board—not just for operators. Think about everyone who tied to your water system
- Let's hear from people in the field

# Job Skills Needed



Andrew Kwan, East Bay Municipal Utility District, CA

<https://www.youtube.com/watch?v=ORZlhncbb6Y>



# What knowledge, skills and abilities are needed today?

- Think across the board—not just for operators. Think about everyone who tied to your water system



# Knowledge, Skills and Abilities Needed by the Employee of the Future

## Technical Background

- Science, engineering, technology, and math (STEM)
- Ability to use computers and software programs as a tool



# Knowledge, Skills and Abilities Needed by the Employee of the Future

## Personal Characteristics

- Dedication and reliability
- Drive, ambition and initiative



# Knowledge, Skills and Abilities Needed by the Employee of the Future

## Soft Skills

- Critical thinking, problem solving and decision making
- Planning, organizing, directing and controlling





# How can we evaluate...

- Science and math knowledge
- Technology knowledge
- Critical thinking/problem solving skills
- Dedication and reliability



# Keep in mind...

- Even if you don't have key people leaving, you may need workforce development to make sure your current employees keep up with the changing demands of the water sector



“People worry about paying to train staff who then leave...

...But what happens if we don't pay to train them and they stay?”



# Workforce Development Process

- Review your workforce
- Keep your best people
- Identify who's leaving
- Consider changes in your needs
- ✓ **Analyze skill gaps**
- Find new people



# Analyze Skill Gaps

## Workforce Requirements (Demand)

- Number
- Competencies
- Grades
- Locations

—

## Workforce Supply

- Number
- Competencies
- Grades
- Locations

=

## The Human Resource Gap

A blue-tinted photograph of industrial machinery, possibly a large pipe or valve, serves as the background for the top portion of the slide.

# Workforce Development Process

- Review your workforce
- Keep your best people
- Identify who's leaving
- Consider changes in your needs
- Analyze skill gaps
- ✓ **Find new people**



# Creating Interest in Water Careers



**WE ARE  
HIRING**

COME CHANGE THE WORLD WITH US

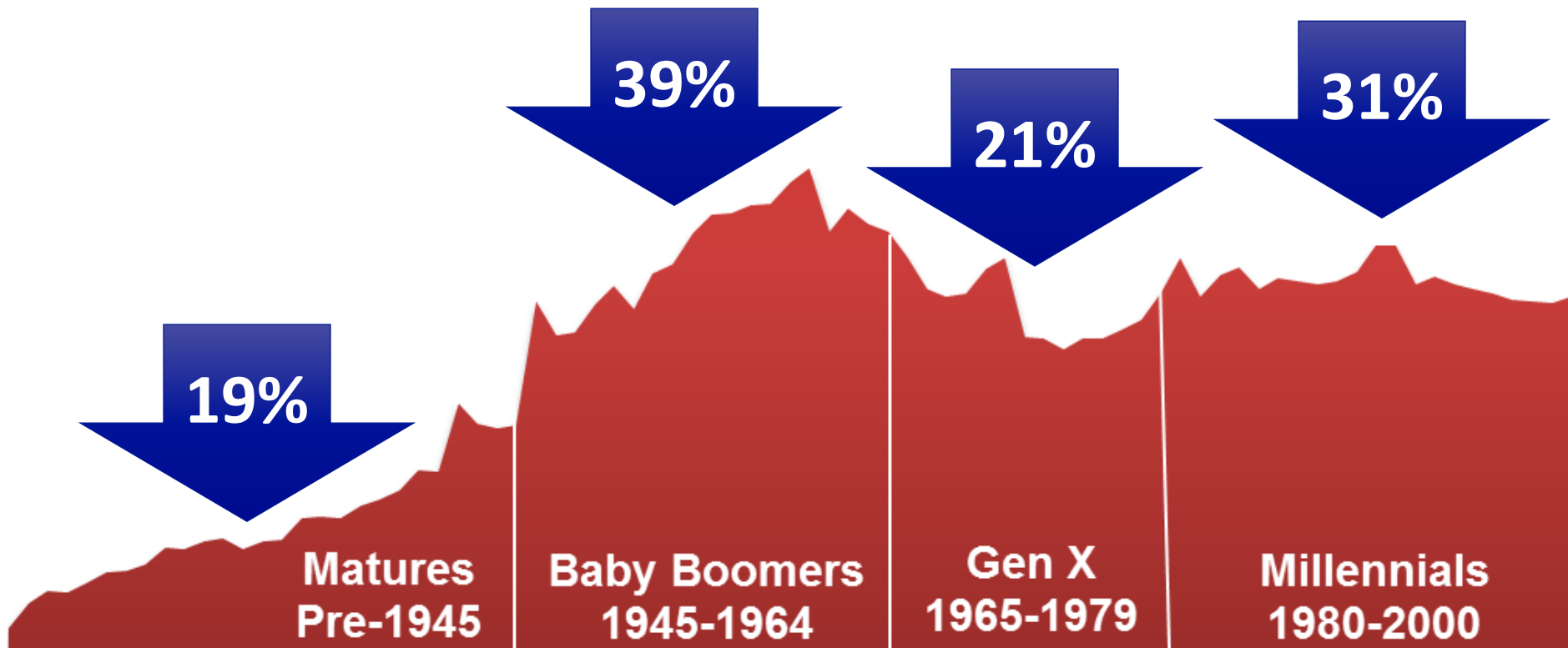




# Demographics



# The US Population Today





People are not necessarily aware of jobs in the water sector

It's up to us to explain why this is a good career choice. Here's one view...



# Why a Career in Water?



Jennifer Walsh  
Senior Principal Engineer  
Hazen & Sawyer

Interviewed on the Words on Water podcast:

<https://wordsonwaterwef.com/2018/02/12/words-on-water-jennifer-walsh-on-being-a-millennial-in-the-water-sector/>

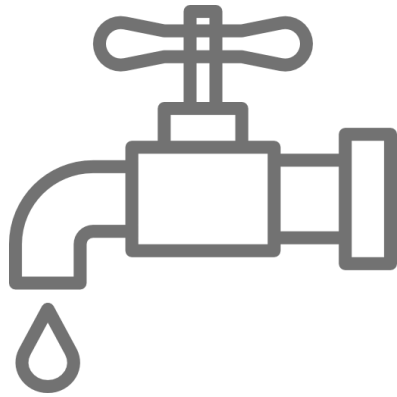




David Hunter  
Denton, TX Water

“I’m a true cheerleader for water-related careers. No matter where you go in the world or what level of economic success you obtain, you will always need to flush a toilet or get clean drinking water. Which means, from a job standpoint, there will always be rewarding careers in drinking water and wastewater treatment.”





Public  
Service



Environmental  
Stewardship



High-Tech  
Nature



Career  
Benefits

# Public Service



Operators say the most satisfying aspect of their work is contributing to the environment and public health

Public Service

We need  
water to  
live


















A person wearing blue gloves is pouring water from a blue bucket into a red wheelbarrow. The wheelbarrow is filled with sand. A white arrow points to a black line on the inside of the bucket, labeled "MEASURING LINE".

MEASURING  
LINE

THE FAMILY  
**Handyman**









# Environmental Stewardship

The Middlesex Water family of companies is committed to the support of sustainable business practices that reflect responsible water and wastewater management. As a provider of water and wastewater services, we look to continuously improve our environmental performance through economically sound, ecologically sensitive, and technologically practical processes.



# Environmental Stewardship



Andrew Kwan, East Bay Municipal Utility District, CA

<https://www.youtube.com/watch?v=ORZlhncbb6Y>



# Put the Mission in Your Job Ad

## **PURPOSE OF THE POSITION**

(The main reason for the position, in what context and what is the overall end result)

The Water Treatment Plant Operator is responsible for of the water plant in order to ensure that residents have safe and clean water in accordance with federal, territorial and municipal legislation, policies and standards.

## **SCOPE**

(The way that the position contributes to and impacts on the organization)

Reporting to the Public Works Foreman, the Water Treatment Plant Operator maintains the water plant. This includes maintaining the water and sewer treatment plant and facilities.

The delivery of safe and clean water is vital to the safety and health of the community. Failure to provide adequate services will jeopardize the health of the community. Failure to meet federal, territorial and municipal legislation and water quality standards will significantly jeopardize the health and well-being of residents and may result in liability for the municipality. Failure to deal with residents and the public in a courteous and respectful manner will lead to complaints concerning municipal services.

## **RESPONSIBILITIES**

(Major responsibilities and target accomplishments expected of the position including the typical problems encountered in carrying out the responsibilities.)

1. Maintain the water treatment plant systems in order to ensure the availability of a clean

Job  
Description for  
a Water  
Treatment  
Plant Operator

Northwest  
Territories –  
Municipal and  
Community  
Affairs



# High Tech Nature



Reverse Osmosis



UV Filtration




SCADA



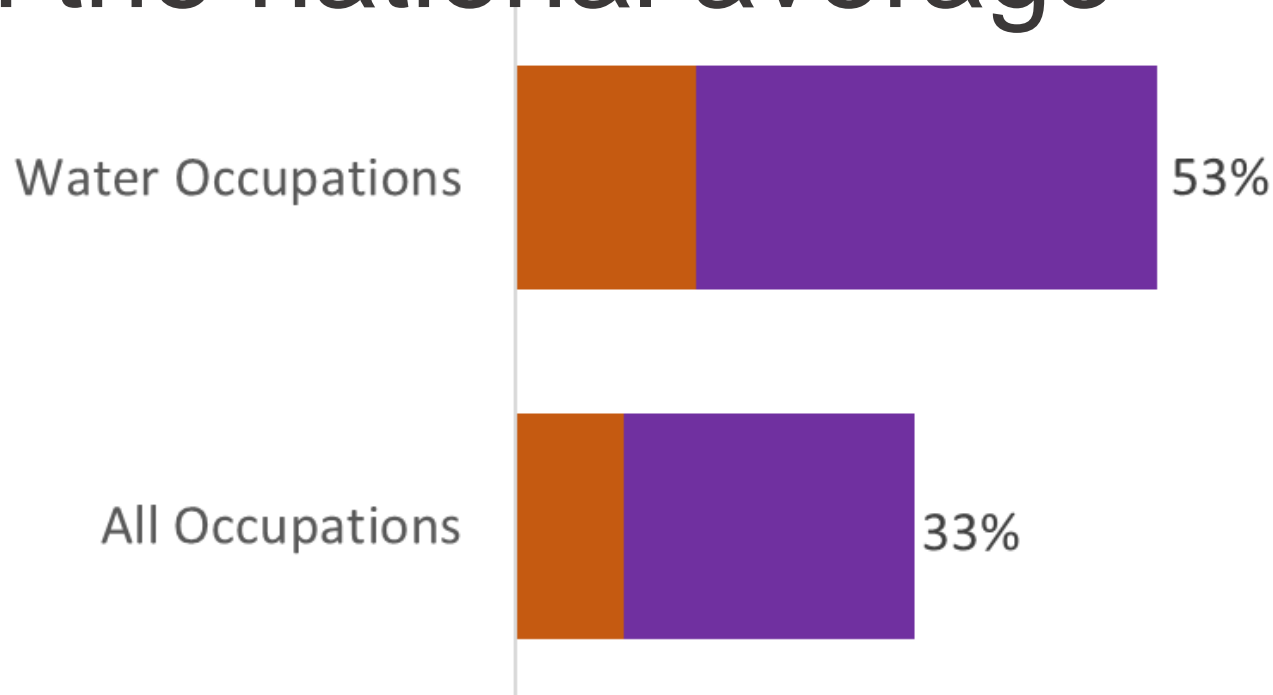
Solar Power


# Career Benefits





More than 50 percent of water workers have a **high school diploma** or **less**, which is higher than the national average





But **water jobs** pay better per hour than the **average American job**

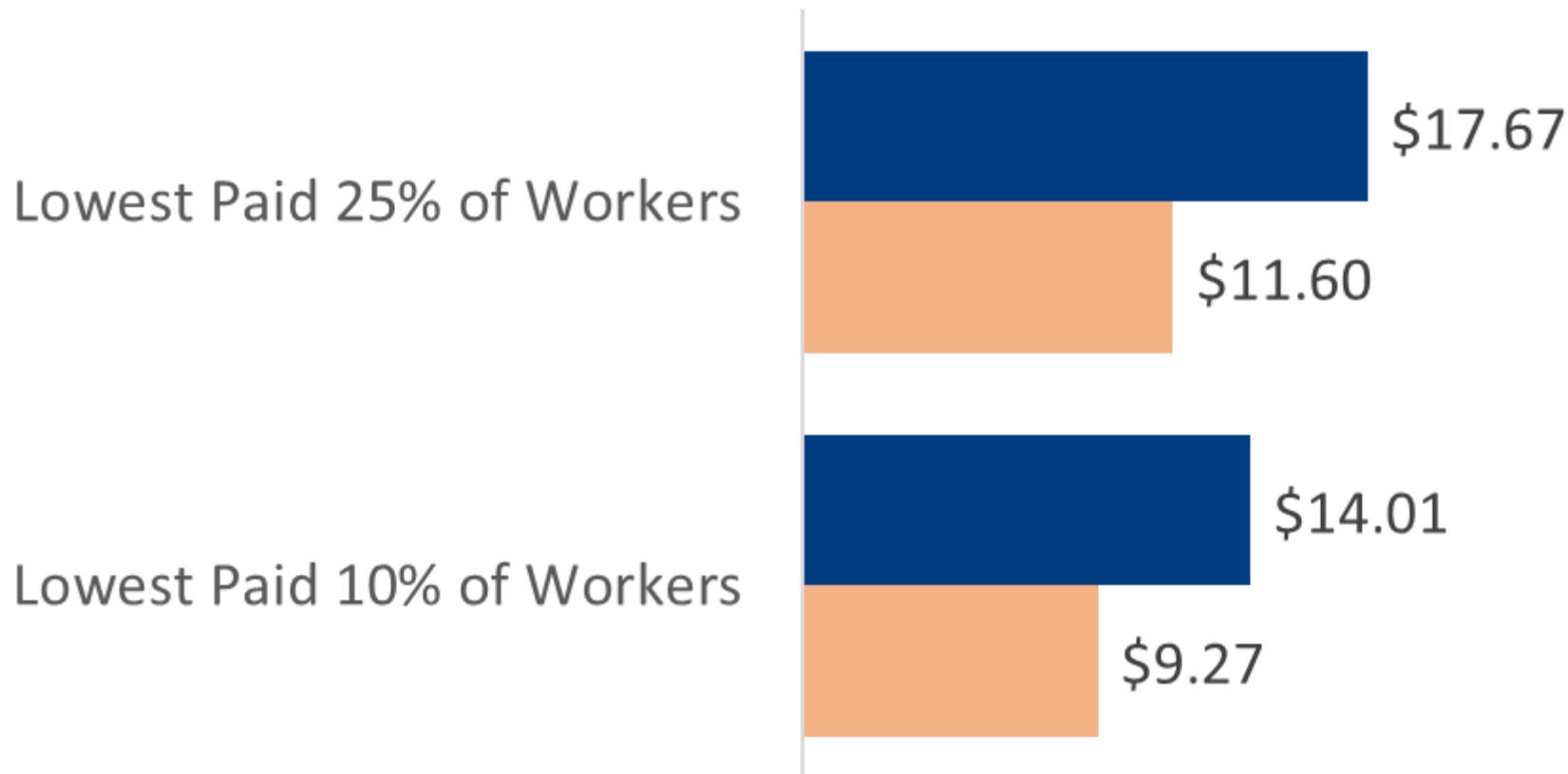
Water Occupations

\$25.22

All Occupations

\$23.86

And **water jobs** pay much better per hour than **average jobs** at the low end of the pay scale





# How to Find Good Employees





# Have a Good Job Description







# Elements of Good Job Posts

- Accurate job title and summary
- Explains job responsibilities transparently
- Clearly states skills and qualifications, including physical demands
- Explains the organization



# Elements of Good Job Posts

- Opening and closing date
- Specific about hours and location
- Includes salary and benefits range
- Includes contact information





What do you think of Irvindale's job description?

What would you change, if anything?

Please work with your neighbors





# Elements of Good Job Posts

- Accurate job title and summary
- Explains job responsibilities transparently
- Clearly states skills and qualifications, including physical demands
- Explains the organization
- Opening and closing date
- Specific about hours and location
- Includes salary and benefits range
- Includes contact information

# Find People Who Share Your Values



What types of candidates is SUEZ looking for? 

SUEZ welcomes applications from all qualified job candidates, and we embrace diversity. The personal attributes of a successful applicant include:

- A positive attitude
- Motivation and a desire to learn, improve, and succeed
- Ability and willingness to work and communicate as a team
- Dedication to complete customer satisfaction
- Ability to apply business knowledge and build our company

did this answer your question?





# Start Young!

## Another successful Kids 4 Clean Water summer camp

Wednesday, August 23rd, 2017

 Recommend 51

 Tweet

 G+

 Save

The children of the San Mateo Subdivision in northern Ambergris Caye participated in the annual Kids 4 Clean Water camp from Monday, August 14th to Sunday, August 20th. The annual event features a five day program that serves as a platform to educate residents of the area on the environmental and health issues associated with its water reserves. The camp aims to teach children about water safety, the water cycle, water pollution, and environmental conservation.







# Give Tours

From trucks to tours to treats, our annual Open House gets bigger and better every year. And you are the reason why.

## Treatment plant tours

<https://www.neorsd.org/community/open-house-always-the-number-1-event-in-the-number-2-business/>

Tours of our award-winning state-certified laboratory will be scheduled throughout the day. Guests interested in attending a tour must register for a tour upon arrival at the Open House. Please proceed to the Tours tent to register for

## Bike tours

Three bike tours of the Southerly Wastewater Treatment Plant are available. Three tours for 20 visitors each are available while spaces last. Register for a 10:00 a.m., 12:00 p.m. or 2:00 p.m. tour.

# Give Tours



“I end every tour with a discussion of all of the careers available in water”

# Internships

OUR SCHOOLS: Hartford Public High School Summer Interns Learn an Industry and Help to Bolster Future Workforce of Hartford Water Company MDC



OUR SCHOOLS: Hartford Public High School Summer Interns Learn an Industry and Help to Bolster Future Workforce of Hartford Water Company MDC

MDC's *Learn and Earn* is a 4 week paid program that took place this year from July 11, 2016 to August 5, 2016. 9 students from



Ray Baral  
Metropolitan District  
Commission, CT

“The money is a bonus to students. And while a lot of their friends sleep in until noon in the summers, they were here actually learning something and getting prepared for a career after high school. They all appreciated that.”





Ray Baral  
Metropolitan District  
Commissioner, CT

“Certainly, we wanted them to be good students, but they didn’t have to be ‘A’ students. The most important thing is that they want to be here and they want to learn.”



# Internships

## Learning by Doing

Interns at the water and wastewater utility in Denton, Texas, gain valuable skills while helping staff members perform essential tasks.

By Linda J. Edmondson

March 2014

Winning Them Over



Intern Benjamin Cruz deploys monitoring equipment at the plant raw water intake in Lewisville Lake. Interns are trained to program, deploy and retrieve monitoring devices and analyze and interpret the data at monitoring stations around the city. This intern went on to become a public health officer in the U.S. Air Force.



# Post High School Training



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PUBLIC UTILITIES

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:: City of Riverside T3 Program – Technical Trades Training

**Invalid version of Flash found. Please upgrade**

## So you're a senior in High School – What's Next?

What's next... is your future! And it is never too soon to start thinking seriously about what type of work you want to do in your life, and how you can obtain it.

Opportunities surround you – just like our T3 Program. T3 is a vocational program waiting to be taken advantage of by just the right student. It provides high school students a chance to continue their education, learn a skill, and make a good living.



## Program Details

Up to two graduating students from Norte Vista School and up to two students from Ramona High School in Riverside may be selected to participate in the two-year T3 training program.

# Veterans of Uniformed Services



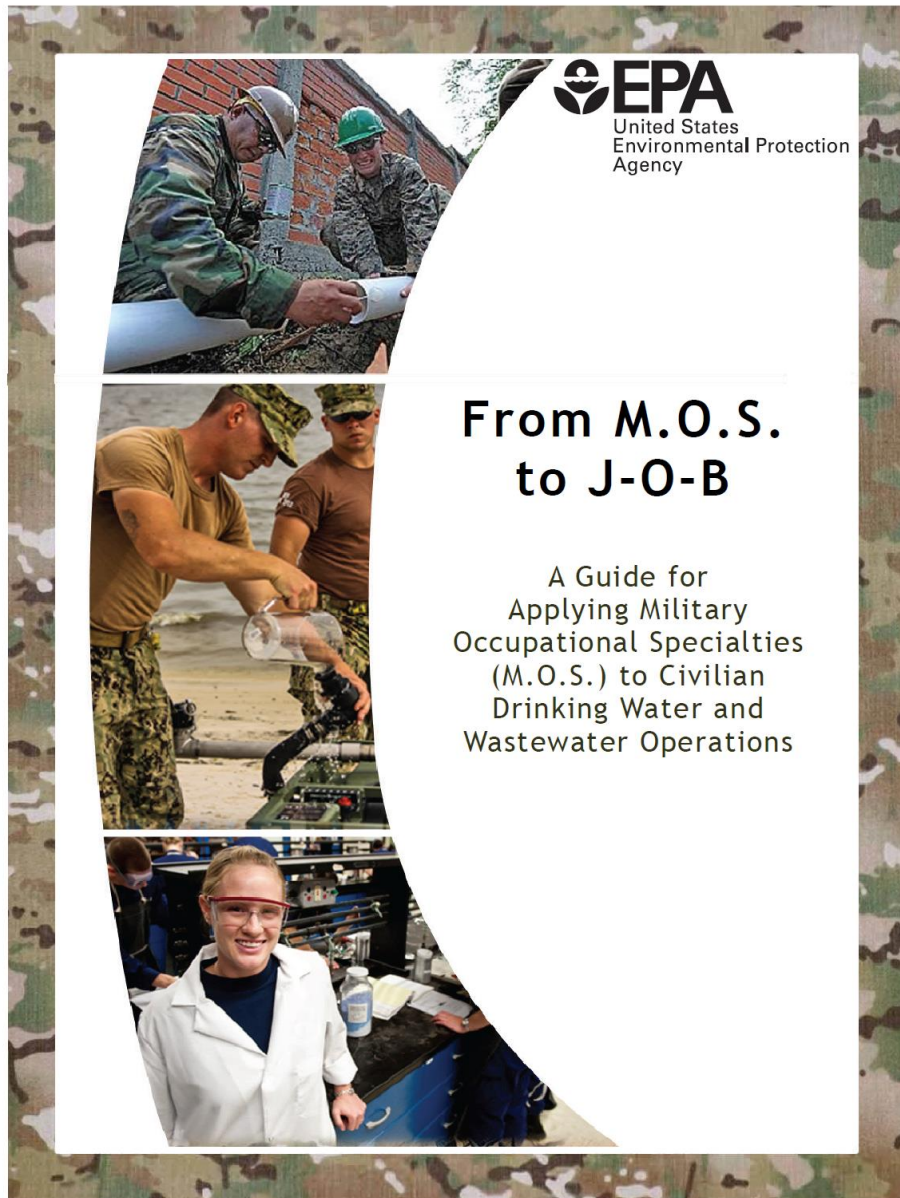




# Veterans of Uniformed Services



CA Water Pros: Judith Marquez interviews Emmanuel Sarpong of Desert Water Agency  
<https://www.youtube.com/watch?v=OAKWOcnn5AI>



# EPA guide for applying Military Occupational Specialties (M.O.S.) to civilian drinking water and wastewater operations

[https://www.epa.gov/sites/production/files/2015-11/documents/from\\_mos\\_to\\_job.pdf](https://www.epa.gov/sites/production/files/2015-11/documents/from_mos_to_job.pdf)

# Employing Veterans: Programs & Funding



[National Association of State Approving Agencies \(NASAA\)](#)



[U.S. Department of Labor Veterans' Employment and Training Service \(VETS\)](#)



# Employee Referral Program

CONVULSANT CENTER PARTNERS

## REFERRALS

THEY REALLY PAY OFF



**\$150** THAT'S RIGHT, YOU CAN MAKE UP TO \$150 FOR EVERY PERSON YOU REFER

**BONUS DETAILS**  
Applicants must put your FULL NAME on their application when they apply.  
For more details, visit [www.convulsant.com](http://www.convulsant.com) or call 1-800-888-8888.

## Who do you know?

- ▶ You know great people.
- ▶ We're looking for great people.
- ▶ You refer them to us.
- ▶ We hire them.
- ▶ You earn cash or extra PTO for every referral hired and gift opportunities for every referral interviewed!

1 = \$750  
2 = \$1,500  
3 = \$2,250



Get the idea?  
Now there's...

Even More to **Think** about

Get more details about the program at:



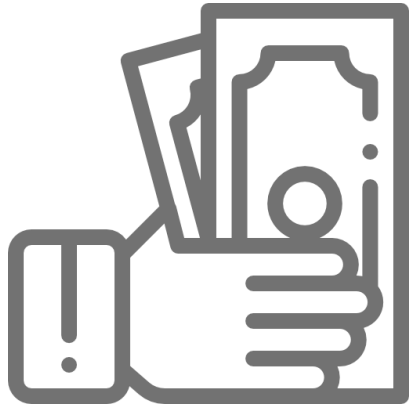
Don't see how referring works?



[www.drivetime-erp.com](http://www.drivetime-erp.com)

Check it out on your mobile device.

# Employee Referral Program



Money



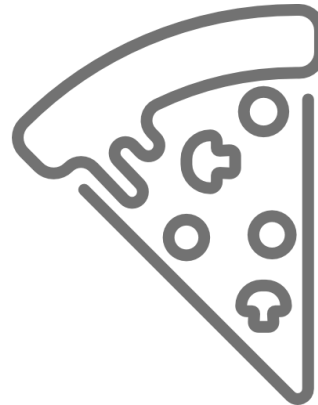
Extra Days Off



Recognition



Event Tickets



Food & Drink



Departmental  
Competition

# Employee Referral Program



Do you offer an employee referral program?



Yes, employees may refer candidates for eligible positions and receive compensation if the hire is successful.

did this answer your question?







# SCENE

[SPRINGFIELD CITY  
EMPLOYEE NEWS EXTRA]

December 2017



## Downtown Springfield Christmas Parade:

**Saturday Dec. 9, 2-4 p.m.  
downtown Springfield.**

The Downtown Springfield Association invites the community to celebrate seasonal storytelling at the 2017 Christmas Parade.

Come be part of the tradition this year as parade participants show off their floats, bands march their way around downtown and holiday cheer is spread for all, with an appearance by Santa.

**The route starts on South Avenue and Elm Street and**

## Human Resources launches Employee Referral Program

This program is designed to reward current employees for successful referrals, while reducing the cost of recruiting and bringing the City the most qualified applicants.

"Human Resources is excited to launch this new program. Employee referrals have a proven track record of success in providing a cost-effective way to secure top talent for hard to fill positions. Given both the competition for talent and the quality of the City's workforce, the new referral program is a great strategy for the City and our employees," said Director of Human Resources Darla Morrison.

Currently, the referral program is limited to specific, hard-to-fill positions. Employees can access the full policy, including a listing of eligible positions, as well as submit your referral application on CityShare under the Human Resources Services tab. The referral will remain on file and will be considered active for two years after the referral application has been submitted. However, the referral will only be active for the job posting for which the referral was originally submitted. The applicant you are referring must apply for the position prior to the application deadline and must submit your name in the 'Referred By' question on their application.



► See **EMPLOYEE REFERRAL PROGRAM** on page 2

<http://www.workforwater.org/>



**Work for Water** Great Careers for a Great Cause

About Us Jobs Utilities Publications and Resources

Search

[Resources for Water Professionals](#) [High School/Votech](#) [College](#) [Military Second Career](#) [Advanced Science](#)



Welcome to **Work for Water!** It's the place where students and job seekers can explore green careers, and utilities will find a clearinghouse of resources for recruiting in the wonderful world of water. Developed by the **American Water Works Association** and **Water Environment Federation**, the world's leading technical experts on drinking water and water quality, this site is packed with resources to find jobs or prepare for rewarding careers in protecting public health and the environment. Learn about what it takes to work for water and get a great job for a great cause!

**High School/Votech**

**College**

**Military Second Career**





**EPA**

## A SELECTION OF TRAINING PROGRAMS

FOR WATER AND WASTEWATER OPERATORS

**SORT BY SPONSOR OR MAJOR CONTRIBUTOR**

- DEPARTMENT OF LABOR/  
WORKFORCE INVESTMENT AGENCY
- UTILITY
- STATE OR PROVINCE
- UNIVERSITY/COMMUNITY COLLEGE
- HIGH SCHOOL
- UTILITY ASSOCIATIONS AND  
OTHER ORGANIZATIONS

**SORT BY PROGRAM ELEMENTS**

- INTERNSHIP
- APPRENTICESHIP
- MENTORING
- FOR NEW OPERATORS
- FOR EXPERIENCED OPERATORS
- FOR MAINTENANCE/OTHER WORKERS

**OVERVIEW**

This is a compilation of fact sheets describing training programs, internships and mentoring programs that help new operators enter the water and wastewater industries, as well as enhance the skills and knowledge of experienced operators.

The fact sheets are intended to promote the sharing of unique ideas and best practices for industry professionals seeking to establish similar training programs. The fact sheets represent the experiences of states, utilities, educational institutions and other organizations that sponsored and developed these programs.

Program sponsors found these programs to have many benefits, including:

- ✓ Creation of highly-qualified and highly-trained technical and professional staff;
- ✓ Development of leadership and supervisory skills in new and current staff;
- ✓ Effective way to build a pool of new recruits;
- ✓ Promotion of succession planning and knowledge transfer;
- ✓ Exposing new audiences to water sector careers.

*EPA would like to acknowledge the members of the Workforce / Operator Certification Workgroup for their efforts in developing these fact sheets.*

EPA compilation of  
fact sheets  
describing training  
programs,  
internships and  
mentoring  
programs

<https://www.epa.gov/sustainable-water-infrastructure/selection-training-programs-water-and-wastewater-operators>

115TH CONGRESS  
2D SESSION

# S. 2346

To establish an innovative water infrastructure workforce development program, and for other purposes.

---

IN THE SENATE OF THE UNITED STATES

JANUARY 25, 2018

Mr. BOOKER (for himself and Mrs. CAPITO) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

---

## A BILL

To establish an innovative water infrastructure workforce development program, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### **SECTION 1. WATER INFRASTRUCTURE AND WORKFORCE INVESTMENT.**

(a) FINDINGS.—Congress finds that—

(1) utilities and local governments invest significant resources in planning, designing, constructing, operating, and maintaining water, wastewater, and stormwater systems—

(A) to ensure a safe and reliable water supply for customers; and

(B) to maintain public health, safety, and quality;

(2) during the 10-year period beginning on the date of enactment of this Act, 30 of the largest water and wastewater utilities in the United States will—

(A) invest \$233,000,000,000 in operating and capital spending; and



# Building a Stronger America: President Donald J. Trump's American Infrastructure Initiative

— INFRASTRUCTURE &

**INVEST IN OUR COUNTRY'S MOST IMPORTANT ASSET – ITS PEOPLE: The President is proposing reforms so Americans secure good-paying jobs and meet the needs of our industries.**

- The President's plan would reform Federal education and workforce development programs to better prepare Americans to perform the in-demand jobs of today and the future. This includes:
  - Making high-quality, short-term programs that provide students with a certification or credential in an in-demand field eligible for Pell Grants.
  - Reforming the Perkins Career and Technical Education Program to ensure more students have access to high-quality technical education to develop the skills required in today's economy.
  - Better targeting Federal Work-Study funds to help more students obtain important workplace experience, including through apprenticeships.



Before we go...



# Two Favors and a Reminder

- Please fill out an eval form for us before you leave
- Please leave the polling device on the table
- Contact us anytime for direct technical assistance on any finance and management topic of our project



A blue-tinted photograph of industrial machinery, possibly a water treatment plant, featuring large pipes and valves.

# Thank you!

Glenn Barnes

Environmental Finance Center

University of North Carolina at Chapel Hill

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