



# Operations Workforce Sustainability

## Posturing for Success



# Operations Workforce Sustainability Posturing for Success

## Presentation Outline

- Pending Operator Shortage
- National Study WRF / AWWA
- Study Recommendations
- Status of District Operations Pending Vacancies
- Education & Experience Requirements
- Efforts in the Bay Area
- District Operations vs Study Recommendations



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HOW TO: GROWTH STRATEGIES

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INDUSTRY NEWS &gt; EDUCATION

CITY

## 2009 Study warns of worker shortages in Bay Area water, wastewater industry

Aug 8, 2010, 9:00pm PDT Updated Aug 5, 2010, 10:26am PDT

David Goll

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A new program at Gavilan College will help Silicon Valley and Bay Area water districts deal with a coming drought of technical workers.

The college has secured nearly \$600,000 in grant money over the next two years from the California Community Colleges Chancellor's Office to establish a water technology education program.

The pending job shortage is based on a 2009 study by a consortium of major Bay

Area water agencies and the California Water Resources Institute, which found that the industry will need 677 new jobs in the next five years.

The Water Environment Federation and state and regional associations are addressing the staffing crisis (and it is a crisis) in various ways. Meanwhile, in California, a group of 14 clean water agencies in the San Francisco Bay area has tackled the issue head-on, working with a community college to create an education program to prepare young people for wastewater careers.

Thus far, it has been so successful that the courses are routinely full, even without any advertising. As a result, the districts are starting

"Historically, we would all go out and advertise for the positions. It was a money game, where we would steal people from each other. As a group of agencies here in the Bay area, we decided that wasn't going to

### 677 jobs needed

According to a 2009 survey of water and wastewater employers, the Bay region will need more than 600 jobs in water and wastewater occupations in the next five years.

Occupations	2009 employment	New and replacement* jobs (in three years)
Water treatment operator	238	106
Water distribution operator	202	439
Wastewater treatment operator	433	214
Wastewater collections operator	212	90
Mechanic/machinist	299	101
Electrician	126	52

**Craig:** Two of our long-time shift supervisors recently gave me their resignations — they are retiring. These two gentlemen were each here for 30 years, and they watched a lot of what is here get built from the ground up — the best training there can be.

They are extraordinarily competent and capable in all aspects of operations, and they are both excellent supervisors. To replace people like that is not easy. So we can't afford to focus on the low end of the experience spectrum.



From left, Michael Scahill, communication services manager, and Doug Craig, director of plant operations.

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This limited  
through those responsible for  
no quantitative information

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or treatment pl  
system, such as  
chemical plants  
and mining ope



# National Study – Water Research Foundation



## Water Sector Workforce Sustainability Initiative

Subject Area: Management and Customer Relations



The purpose of this report is to;

- frame the challenges causing the crisis in the water and wastewater utility industry,
- provide information on the specifics of the challenges and opportunities for addressing them,
- review successful utility and other industry collaborative initiatives that are already working, and
- propose a process for moving the utility industry forward in designing and implementing collaborative initiatives.



# Challenges

Shifting Demographics Impact of the US Labor Market

Diversity in the Workforce Compound Workplace Challenges

Lack of STEM Education (Science, Technology, Engineering, Math)



# Industry Recommendations

1. *Create a Water Sector Job Image*
  - *Improve outreach to K-12*
  - *Develop image to attract workers*
2. *Improve water sector career pathways*
3. *Establish a workforce resource clearinghouse*
  - *Promote sharing of content*
  - *Information and practices among utilities and partnering organizations*



# Recommended Best Practices

- *Training and Development*
- *Compensation and Rewards*
- *Workforce/Succession Planning and Continuity*
- *Recruiting and Outreach*
- *Knowledge Retention and Management*
- *Generational and Cultural Awareness*
- *Leadership Development*
- *Career Planning and Management*
- *Strategy and Measures*



# Status of the District

	Cert Grade	<3 yrs	3-5 yrs	5-10 yrs	>10 yrs	Interest in Ops Supv or Higher
Plant Manager	V			X		
Operations Supervisor	V		X			
1 Operator	V				X	X
2 Operator	IV		X			X
3 Operator	IV				X	
4 Operator	III			X		
5 Operator	III				X	X
6 Operator	III				X	
7 Operator	III				X	X
1 Intern	OIT				X	X





# Status of the District 3-5 Yrs

	Cert Grade	<3 yrs	3-5 yrs	5-10 yrs	>10 yrs	Interest in Ops Supv or Higher
Plant Manager	V		X			
Operations Supervisor	V				X	
1 Operator	IV			X		
2 Operator	III	X				
3 Operator	III	X			X	X
4 Operator	III				X	
5 Operator	III				X	X
6 Operator	I				X	
7 Operator	I				X	

In 3 -5 yrs two Operators will be needed.



# SWRCB Operator Certification Requirements

EDUCATION		QUALIFYING EXPERIENCE
GRADE I		
1	H.S. diploma or equivalent 6 educational points	1 year
GRADE II		
1	H.S. diploma or equivalent and 9 educational points	18 months as a Grade I operator
2	H.S. diploma or equivalent and 12 educational points	2 years
3	AAS degree, or higher, or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	1 year
GRADE III		
1	H.S. diploma or equivalent and 12 educational points	3 years as a Grade II operator
2	H.S. diploma or equivalent and 18 educational points	4 years
3	AAS degree or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	2 years
4	BS degree or higher, including a minimum of 30 semester units of science courses	1 year



## SWRCB Operator Certification Requirements

GRADE IV		
1	H.S. diploma or equivalent and 32 educational points	6 years
2	AAS degree or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	4 years
3	BS degree or higher, including a minimum of 30 semester units of science courses	3 years
4	Valid registration as a chemical, civil, or mechanical engineer.	2 years
GRADE V		
1	H.S. diploma or equivalent and 48 educational points	10 years
2	AAS degree or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	6 years
3	BS degree or a higher degree, including a minimum of 30 semester units of science courses	5 years
4	Valid registration as a chemical, civil, or mechanical engineer.	4 years



# How Does The District Stack Up

## Industry Recommendations

*Create a Water Sector Job Image*





# How Does The District Stack Up

## Industry Recommendations

*Create a Water Sector Job Image*

Rebrand

**Sewage Treatment Plant**



**Water Recycling Facility**







# How Does The District Stack Up Industry Recommendations

*Create a Water Sector Job Image*

Improve Outreach

NSD Website

The screenshot shows the Napa Sanitation District website. The header features the district's name and tagline 'Clean water. Healthy Community.' with links to Home and Contact Us. A navigation bar includes links for Home, Residents, Businesses, Protecting the Environment, Education, Facilities, and About Us, along with a search bar. The main content area is divided into several sections:

- Sewer Overflow Prevention:** A call to action to call the district first for drain problems, with contact information in English and Spanish.
- Capacity Charge Methodology Changes Approved:** A notice about new capacity charges for commercial and industrial buildings effective August 31, 2015.
- Recycled Water for Agriculture:** Information about trucked recycled water for vineyard and farmland use during drought.
- NSD rolls out a new online planroom:** A notice about a new online platform for viewing bid announcements and documents.
- Wastewater treatment in pictures!** A link to a new diagram illustrating wastewater treatment at the Socol Water Recycling Facility.
- No wipes in the pipes!** A public service announcement about the dangers of flushing wipes down the toilet.
- FUN FACTS:** A section highlighting that the district collects fat, oils, and grease to generate energy for the wastewater treatment plant.
- Need trash & recycling service?** A link to contact the district for recycling and waste services.

On the right side of the website, there is a 'Quick Links' section with a list of links: Jobs at NSD, Board Meetings, Rates and Fees, Connecting to the Sewer, Residents Frequently Asked Questions, Recycled Water, and Events.



# How Does The District Stack Up

## Industry Recommendations

*Create a Water Sector Job Image*

Improve Outreach – K-12 Plant tours





# How Does The District Stack Up

## Industry Recommendations

*Create a Water Sector Job Image*

Improve Outreach – Ag Day







# How Does The District Stack Up

## Industry Recommendations

*Create a Water Sector Job Image*

Improve Outreach – Earth Day





# How Does The District Stack Up Industry Recommendations

*Create a Water Sector Job Image*

Improve Outreach –  
Open House








# How Does The District Stack Up

## Industry Recommendations

*Create a Water Sector Job Image*

Improve Outreach –

Classroom  
Presentations



**FREE K-6 Classroom Presentations on  
Wastewater Treatment  
& Water Quality**  
Presented by the Napa Sanitation District

**Introduce your students to the wonders of wastewater treatment!**

Most people have no idea what happens to their water after it goes down the drain. This interactive classroom presentation introduces students to the importance of wastewater treatment in protecting public health and the environment.

**In the presentation, your students will learn about:**


- Wastewater treatment - including physical, chemical and biological processes.
- Recycled water - how it's treated and what it's used for.
- Biosolids - how sewage sludge becomes a useful soil amendment.
- The difference between wastewater and stormwater.
- What they can do to protect water quality and public health.

**Classroom presentation details:**

- Presentations take about one hour.
- Maximum class size is 35 students.
- Information is tailored to the age group.
- You can also schedule a free tour of the wastewater treatment plant to complement this presentation.

**To schedule a classroom presentation:**

Please contact:  
Mark Koekemoer  
Lab Supervisor  
(707) 258-6000, ext. 609  
mkoekemoer@napasan.com

 **Napa Sanitation District**  
Clean water. Healthy community.  
www.napasan.com



# How Does The District Stack Up

## Industry Recommendations

### *Improve water sector career pathways*

Quantify predicted labor needs.

*The District has completed the strategic staffing plan that address the staffing needs over the next ten years.*

Redesign skill requirements to match increased skill with increased compensation.

*Entry level operators typically enter the District as an OIT or have a lower level of certification. When an operator achieves a Grade III certification they are eligible to learn the skill needed to be a panel operator. Once the operator demonstrates ability as a panel operator his/her pay increases.*

*The District also provides extra compensation to those individuals who attain a higher certification than is required by their position.*



# How Does The District Stack Up

## Industry Recommendations

### *Improve water sector career pathways*

Identify existing training programs within utilities and colleges that meet a standard set of training requirements.

*Several sources of training are available to NSD operators to gain education credits needed for certification.*

*These can be attended locally or attended through correspondence courses.*



# Training

## **Community Colleges Offering Wastewater Certificate or Degree Programs**

Hartnell College

Imperial Valley College

Los Angeles Trade-Technical College

Palomar College

Santiago Canyon College

San Bernardino Valley College

Santa Barbara City College

Shasta College

Solano Community College

Ventura College

Bakersfield College

College of the Canyons

College of the Sequoias

Merced College

Sacramento City College

Santa Rosa Junior College



# Training

## **Universities and Schools Offering Wastewater Training or Technology Courses**

Office of Water Programs

California State University, Sacramento

## **Non-Profit Private Companies Offering Wastewater Training**

OCT Academy

WasteWater Technology Trainers

American Water College

Tri-Valley Regional Occupational Program



# Training

## **Water Associations**

California Water Environment Associations (CWEA)

California Rural Water Association

Water Environment Federation (WEF)


Bay Works

Bay Area Consortium for Water and Wastewater Education (BACWWE)





# Training



bay area water/wastewater workforce reliability

CAREERSRESOURCESEVENTSABOUT US

EXPLORE CAREER PATHS

Electrician

Electronic Maintenance Technician/Instrument Technician

Engineer

Machinist/Mechanic

Wastewater Treatment Operator

Water Distribution Operator

Wastewater Collections Operator

Water Treatment Operator

Find Training Locations

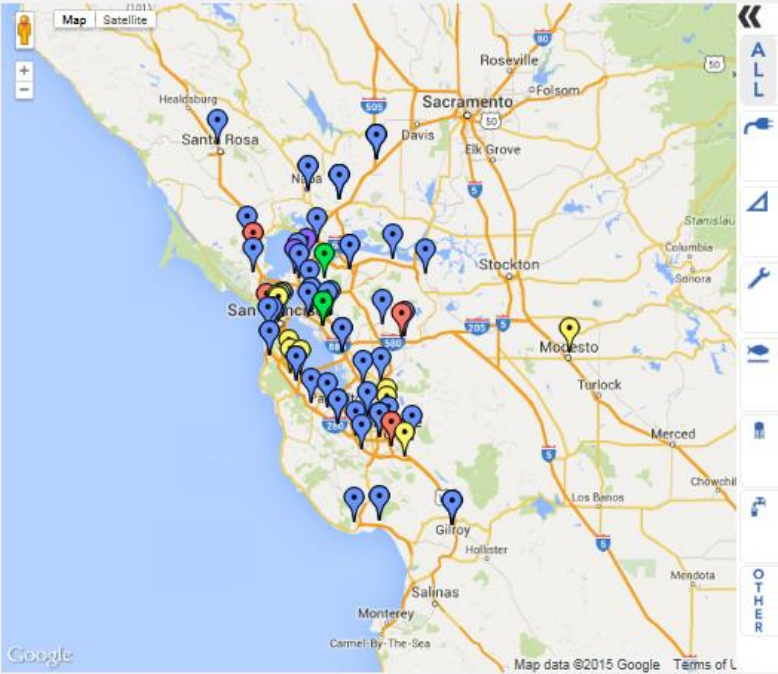
FIND JOBS & INTERNSHIPS

Find Employers

Post an Opportunity

Find Employers

Find Training Locations



Map data ©2015 Google Terms of L

### Training Opportunity Map

Jobs in the water and wastewater industry provide the opportunity to earn a good living for yourself and your family while serving your community and protecting the environment. Our Training Opportunity Map provides information on Bay Area colleges, universities, unions, and vocational programs that can help you prepare for a rewarding career.

#### Map Legend

- Colleges
- Unions
- Regional Operational Program (ROP)
- High Schools
- Other

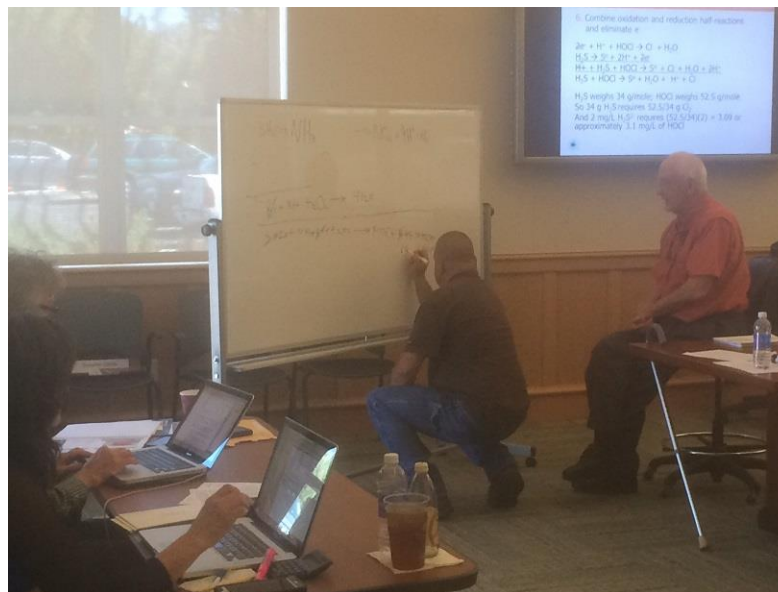


## Training

# Napa Sanitation District

November 2014 – Wastewater Operator III  
Certification Training

September 2015 – Wastewater Chemistry  
Training





# How Does The District Stack Up

## Industry Recommendations

### *Improve water sector career pathways*

Develop integrated internship, apprentice, and mentoring programs.

*The District has recently engaged in an internship program. Steve Chavis has been the main driver. He developed the curriculum and reached out to Solano Community College who in association with BACWWE has announced the availability of two internship positions at the plant for the 2015 – 2016 academic year.*

*In addition to the internship program the plant has started a mentoring program allowing an individual (Andrew Jellison) who has completed coursework to gain qualifying experience as a Certified Operator In Training.*



# How Does The District Stack Up

## Industry Recommendations

### *Improve water sector career pathways*

Define key operational job positions and align with U.S. Department of Education Career Clusters & Pathways.

*We are currently working with the Napa County Office of Education (NCOE) to allow teachers to gain aspects of our duties and incorporate them into their Healthcare and Biotechnology pathways.*

*During the second week of August 2015, three teachers from American Canyon High School and Napa Valley High School spent two days at the plant shadowing Operations, Maintenance, and the Laboratory.*



# How Does The District Stack Up

## Industry Recommendations

### *Implement a Water Workforce Resource Clearinghouse*

Define the clearinghouse concept in terms of membership, information to be shared and ways to manage the provision of and access to the information.

*Bayworks is an organization of which the District is a member that serves this concept.*

*Two District Employees are featured on their web site Steve Chavis and Gabe Snook. Both speak to their experience at the District. Gabe speaks in Spanish as well.*



## Our Signatories

BAYWORK's twenty-five signatories strategically invest resources together to sustain and develop the reliable workforce needed to serve our customers and protect the environment both now and for future generations.

[learn more >](#)

Explore Career Paths  
in Water & Wastewater



## About BAYWORK



BAYWORK: Building the Future of Water

[Learn More >](#)



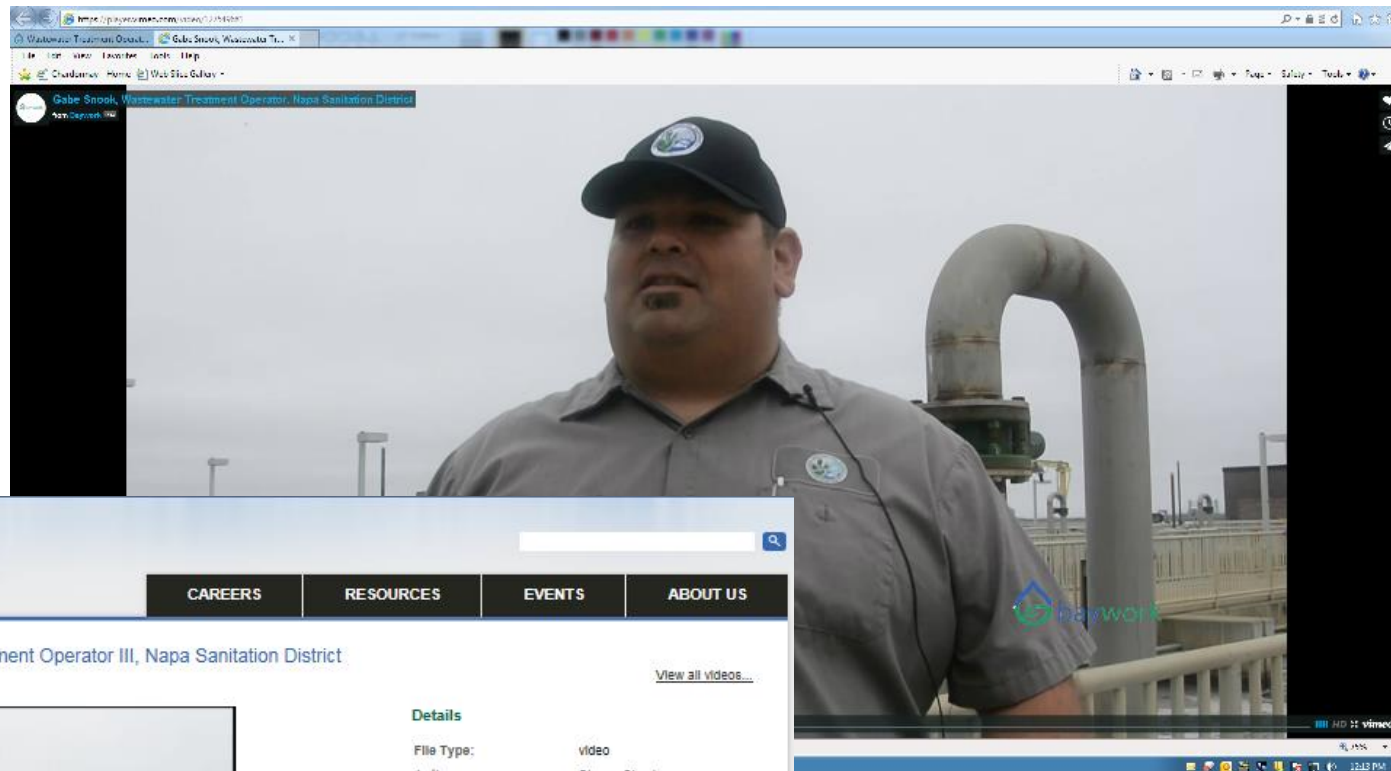
## Wastewater Collections Operator

Definition Wastewater Collections Operators are responsible for skilled tasks in the construction, maintenance, and repair of wastewater system facilities; operating a variety of light and moderately heavy power driven equipment; and ensuring public health and safety by preventing and/or responding to sewage overflows and blockages. They inspect, clean, maintain, construct, and repair wastewater collection systems...

[learn more >](#)

There are currently no events scheduled.





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RESOURCES

EVENTS

ABOUT US



Steven Chavis, Wastewater Treatment Operator III, Napa Sanitation District

March 11, 2014

[View all videos...](#)



#### Details

File Type: video  
 Author: Steven Chavis  
 Organization: Napa Sanitation District  
 Signatory: Napa Sanitation District  
 Organizational Processes: Candidate Development



Steven Chavis, Wastewater Treatment Operator III at Napa Sanitation District talks about his job and what it takes to work in the wastewater industry.

[CONTACT](#) | [SFBAYWORK2011@GMAIL.COM](mailto:SFBAYWORK2011@GMAIL.COM)

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# How Does The District Stack Up Industry Recommendations

## *Implement a Water Workforce Resource Clearinghouse*

Use technology to create interactive sharing and use of resources such as:

- - standardize job descriptions, classifications, and pay grades
  - - recruitment information (e.g. innovative job announcements)
  - - materials for high school classrooms
  - - materials for summer camps
  - - example internship or coop programs
  - - example mentoring programs
  - - example outreach materials for schools, both students and educators (e.g. job fairs, career days)
  - - web conferences or seminars to provide awareness of the Water Workforce
- Define the clearinghouse concept
- Resource Clearinghouse
  - - links to websites of related workforce information and examples from other
  - industry sectors





# Napa Sanitation District

Clean water. Healthy Community.

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# How Does The District Stack Up Industry Recommendations

## *Implement a Water Workforce Resource Clearinghouse*

*The District is also developing an internal website in the form of an Electronic Operations and Maintenance Manual*

*This interactive application will allow for knowledge capture of experienced operators that will be made available to anyone who has interest.*

- *Utilize electronic media and web search type interaction.*
- *Links to Operations and Maintenance Manuals*
- *Standard Operating Procedures*
- *Laboratory Information*
- *Maintenance Information*
- *Equipment Drawings*
- *Manufacturer Drawings*



## Conclusions

- The District is in a favorable position.
  - Efforts the District has taken have resulted in motivated staff, increased job interest, a group effort, and good communication.
  - Operations staffing will not be affected until 3-5 years from now.
  - 70% of the Operations workforce plan on working past 10 years from now.
  - The District is very involved with outreach.
  - It has affected a positive image change.
  - The District is engaged and collaborative.
  - The District is doing its share to promote the future pool of operators.
  - Adequate training opportunities exist.
- 
- Over the next 3-5 years the District should complete the electronic O&M including the SOPs to capture tacit knowledge and have information readily available.
  - The District should continue with its collaborative association with other organizations.