



Apprenticeship Program

Designed to enhance and prepare the apprentice to be fully qualified in multiple aspects of water and/or wastewater operations.



The background of the image is split vertically into two halves. The left half is a light blue color, and the right half is a light yellow-green color. In the center, there is a white-bordered box containing text. Behind the text, two men are visible, both wearing safety glasses and smiling. The man on the left is wearing a blue shirt, and the man on the right is wearing a yellow shirt. The text is centered within the white box and reads:

**DESIGNED TO ENHANCE AND
PREPARE THE APPRENTICE TO BE
FULLY QUALIFIED IN MULTIPLE
ASPECTS OF WATER AND/OR
WASTEWATER OPERATIONS.**

History

It takes more than 380,000 highly skilled water and wastewater personnel to ensure the public supply of safe drinking water and to protect our lakes, streams and groundwater. Advancements in water treatment and supply technology have increased the skills and training required of this workforce. Water professionals are ultimately responsible for meeting stringent regulatory standards, replacing aging infrastructure, recruiting and training new operations specialists, and responding to and recovering from disasters.

In addition to increasing professional demands, utilities will soon be forced to replace many of their most experienced employees. Over the next decade, the water sector is expected to lose between 30 and 50 percent of the workforce to retirement. Many of these employees have worked at the same utility for the majority of their careers, and they will depart with decades of valuable institutional knowledge.

NRWA and State Affiliates currently provide training on operator certification, financial sustainability, environmental compliance, utility management and governance to 80,000 water professionals annually in all 50 states. Last year, over 55,000 on-site consultations were delivered by NRWA's technical experts for water quality, energy efficiency, source water protection, technical assistance and emergency response.

The WaterPro Apprenticeship program will initially be tailored to water system operations specialists and wastewater system operations specialists. Additional apprenticeships programs are in the works for water utility system customer service personnel and technical assistance specialists.

On November 14, 2017 National Rural Water Association held a formal signing ceremony in recognition of the National Apprenticeship Week 2017. Twelve States signed initially, California Rural Water Association included. The Department of Labor will support NRWA and associates as the Waterpro Apprenticeship Program becomes a nationally recognized standard.



Picture, from Left Matt Holmes, Deputy CEO National Rural Water Association Sam Wade, CEO NRWA Steve Fletcher, President NRWA and Washington County Water Company Ondre Harris, Senior Policy Advisor for Employment and Training Administration in the Department of Labor Anne Hazlett, USDA Assistant Secretary for Rural Development John Ladd, Administrator at USDOL, Employment and Training Administration, Office of Apprenticeship Chris Shaffner, CoBank Sector Vice President of Water and Community Facilities



Program Overview

California Rural Water Association has two apprenticeship programs starting in the fall of 2018. This exciting new venture is in response to the growing demand for skilled operators as more and more operators are reaching retirement age. Both the water and wastewater operations specialist programs will be two years long. Applications will be accepted year-round, therefore, an apprentice can enter the program at any point.

EMPLOYER RESPONSIBILITIES & BENEFITS

- Provide onsite supervision for the On the Job Learning (OJL) portion of the program.
- Maintain employment and OJL records.
- Must pay \$1,500 apprenticeship tuition at the beginning of each year.
- Eligible for salary assistance with one or more apprentices registered.

WHO CAN APPLY?

Applicants must comply with the following criteria:

- Applicants must be currently employed by a water or wastewater system
- 18 years old or older
- Have a high school diploma or GED
- Physically capable to perform the essential functions of the apprenticeship program
- Apprentices will be required to take and pass drug screening
- Apprentices must pass a background check (pursuant to federal guidance for employees of a water system)
- Applicants must be able to attend all formal trainings

The curriculums are designed to enhance and prepare the apprentice to be fully qualified in multiple aspects of water and wastewater operations. There will be a total of 288 formal training hours for each program. Below is a list of post apprenticeship certifications and knowledge gained.

WATER OPERATIONS SPECIALIST:

- Eligible to take the Water Treatment Grade 2 Exam
- Eligible to take the Water Distribution Grade 2 Exam
- Eligible to take the Water Treatment Grade 3 Exam (upon completion of 1-year experience as a T2)
- Eligible to take the Water Distribution Grade 3 Exam (upon completion of 1-year experience as a D2)
- Backflow Tester Certification through AWWA, NCBPA, or ABPA
- Utility Management Certification
- Sampling Certification
- Trenching and Shoring Safety Certification

WASTEWATER OPERATIONS SPECIALIST:

- Wastewater Treatment Grades 1-3:
The state certification program mandates minimum of 1 year's experience for the Grade 1 level certification and the experience requirements increase for the Grades 2 and 3. The education requirements are all met and/or exceeded when you complete the Apprenticeship's formal training courses.
- Confined Space Entry Certification
- Trenching and Shoring Certification
- Utility Management Certification

Water System Operations Specialist

CRWA APPRENTICESHIP PROGRAM

PROGRAM GUIDELINES

- A letter of understanding and commitment needs to be signed by both the sponsoring system and the apprentice.
- Courses will be provided monthly in 12-hour blocks or two days per month on a regular schedule.
- The cross-connection tester course will be one week as usual.
- All sponsoring agencies will receive course updates and progress reports.
- Tracking on formal classroom time will be done internally.
- All apprentices will receive course updates and completion schedules monthly.
- Training fees will be assessed annually at the beginning of each year at the cost of \$1,500 per year. This includes all instruction and textbooks. There is an opportunity for utility apprentice's sponsors to have a portion of the apprenticeship salary and benefits paid for up to one year. This will be determined on a system by system basis.



Water System Operations Specialist

FORMAL TRAINING – 288 HOURS TOTAL OVER A 2-YEAR PERIOD

YEAR 1 CURRICULUM

Course	CEUs	Course Material
Orientation		Program overview
Introduction to Mathematics	12 hours	CRWA Basic Math course
Water Distribution System Construction	36 hours	ACR course
Regulatory Updates	12 hours	CRWA State approved update
Security/Emergency Response	12 hours	State approved ERP and Security
Water Distribution O&M	36 hours	Water Distribution System O&M, Volume 1 (Sac State)
Backflow Tester Course	36 hours	CRWA course USC manual 10th Edition
Total Formal Training Hours	144 hours	

YEAR 2 CURRICULUM

Course	CEUs	Course Material
Advanced Mathematics	12 hours	CRWA Advanced Math course
Water Treatment O&M Volume 1	36 hours	Water Treatment Plant Operation, Volume 1 (Sac State)
Sanitary Survey Prep Course	24 hours	CRWA course
Water Treatment O&M Volume 2	36 hours	Water Treatment Plant Operations, Volume 2 (Sac State)
Chlorine Disinfection	12 hours	CRWA course
Utility Management Certification	24 hours	NRWA course and certification
Total Formal Training Hours	144 hours	

CERTIFICATION QUALIFICATIONS

This course will provide the following certifications or the qualifications to test for a certification:

Water Treatment Grade Level 2

Upon completion of the Water Treatment O&M Volume 1; 36-hour course. (State Exam)

Water Treatment Grade Level 3

Upon completion of two 36-hour courses and one year on the job experience at a Grade 2 facility or higher. (State Exam)

Water Distribution Grade Level 2

Upon completion of the Water Distribution 36-hour course. (State Exam)

Water Distribution Grade level 3

Upon completion of two 36-hour courses and one year on the job experience at a Grade 2 level facility or higher. (State Exam)

AWWA, ABPA, or NCBPA Backflow Tester Certification

The 36-hour course allows you to sit for the tester exam. AWWA and NCBPA certification exams and hands-on testing will be given at the completion of the course.

Utility Management Certification

The UMC course is a national certification for utility management. The course work and one year of experience will make you eligible for the testing that will be given at the end of the course.

Sampling Certification

The course work completed in this area will allow you to take the short exam to obtain a sampling certification.

Trenching & Shoring Safety Certification Cards

Water System Operations Specialist

YEAR 1 CURRICULUM

Introduction to Mathematics

This session will cover water terms & definitions, water measurements, formulas (area and volume), and conversions. This course is appropriate for operators preparing for the Grade 1 exam or anyone wanting basic water math skills.

Water Distribution System Construction

This course is an in-depth look at preparing, planning, and implementing a distribution system project/repair from the operations level. This course is done in a pre-test/post-test format covering blueprint reading, construction and repair safety, traffic control planning, trenching techniques and safety, pipe laying procedures, hydrant and valve installation, and final project completion procedures.

Regulatory Update

This drinking water regulation update will focus on recent EPA regulatory actions including the Unregulated Contaminant Monitoring Rule 3rd cycle, the Airline Drinking Water Rule, and other recent federal SDWA action/inaction.

Security/Emergency Response

This course will review the requirements for updating and maintaining your ERP and VA plans for compliance and liability reasons. Students will learn how to effectively create emergency response procedures for a variety of potential situations and how to effectively create emergency response procedures for a variety of potential situations and how to effectively address the concerns that your VA will identify in your emergency response planning.

Water Distribution O&M

This course prepares students to take the Grade 1 or Grade 2 Water Distribution Operator exam. It also satisfies the 36 hour (3-unit) specialized training requirement for the Grade 2 Water Distribution Operator exam. There are no prerequisites for this course. Upon successful completion of this class, students will be able to define/identify topics such as pipe maintenance and pipe features, reducing agents, trihalomethanes, breakpoint chlorination, and distribution system construction and design.

Backflow Tester Course/AWWA, NCBPA or, ABPA Certification

This course is designed for individuals who would like to receive their Backflow Certification. This course focuses on: cross-connection control program regulations, plumbing codes, hydraulics and hazards of backflow, presentation of backflow incidents, tester safety training (including personal and work area protection and confined space entry procedures), approved test procedures and diagnosis of possible failures when testing various backflow assemblies, and use

of a test simulator to create a variety of failure conditions to help testers recognize and diagnose problems in the field. A hands-on practical exam and short quiz are conducted on the last day of class.

YEAR 2 CURRICULUM

Advanced Mathematics

This class enhances water math skills for those who already have developed knowledge of using basic math formulas. Mathematical equations include CT calculations, filtration, sedimentation, and solution mixing. Time is provided to review math problems and allow the participant to find the solution.

Water Treatment O&M Volume 1

This course prepares students to take the Grade 1 or Grade 2 Water Treatment Operator exam. It also satisfies the 36 hour (3-unit) specialized training requirement for the Grade 2 Water Treatment exam. There are no prerequisites for this course. Students will be able to define/identify water treatment concepts. For example, a student will be able to calculate square feet, cubic feet, volume, conversion of flows, pounds formula, mg/L, flow and head, explain the difference between coagulation and flocculation, and explain the purpose of disinfection and the factors that influence disinfection.

Sanitary Survey Prep Course

This class is to assist or prepare the water system for a sanitary survey. The main objective is to provide awareness to the system owner/operator regarding sanitary defects.

Water Treatment O&M Volume 2

This course, a continuation of Volume 1, is designed to train operators to safely and effectively operate and maintain drinking water treatment plants.

Chlorine Disinfection

This course will cover chlorine disinfection as it relates to utilization of sodium hypochlorite. This course will cover trouble shooting basic chlorine taste and odor problems, residual kmc retention, and basic chlorine chemistry as it relates to the development of TTHMs in the distribution system and storage.

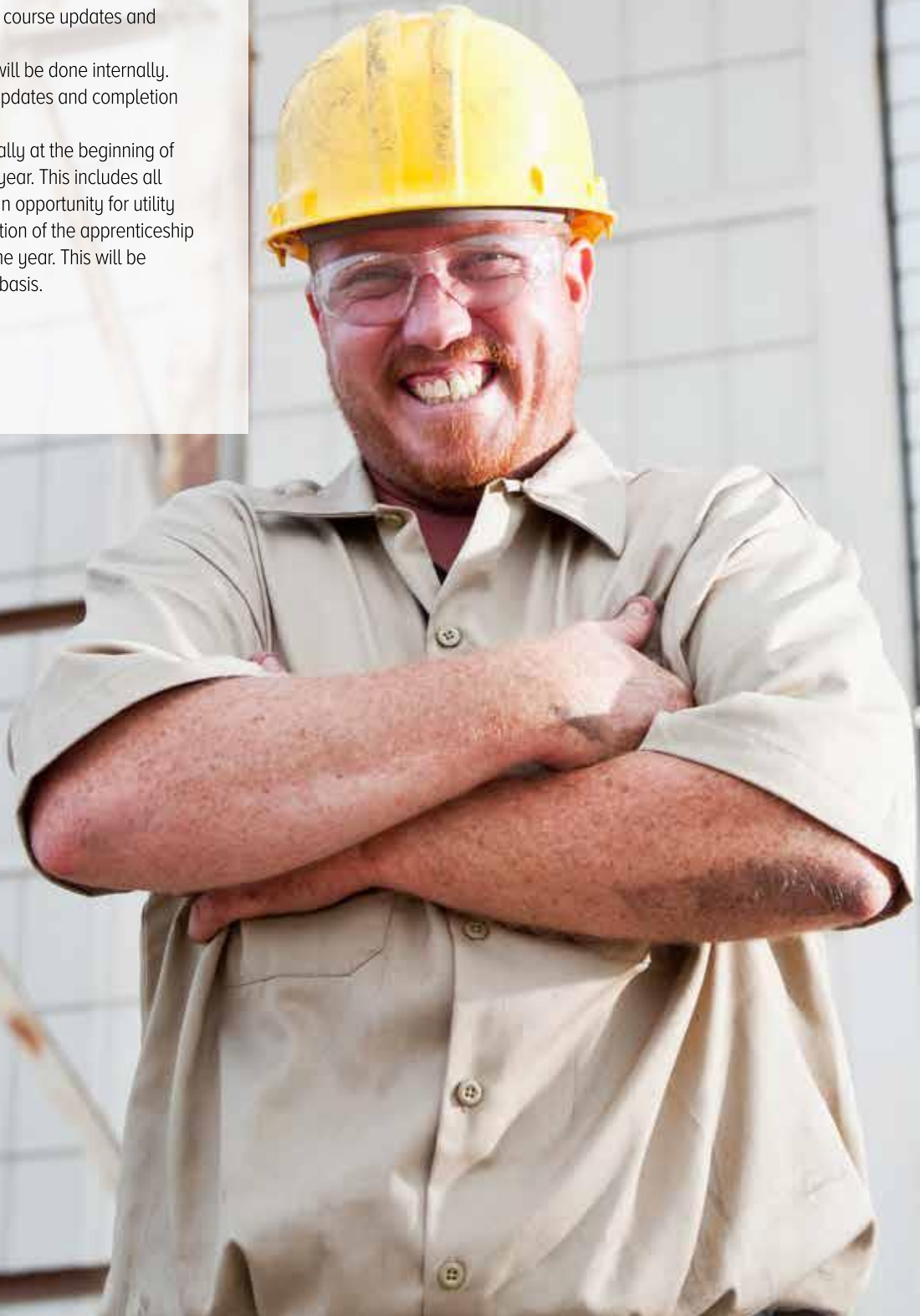
Utility Management Certification

Our field-experienced instructors know the ins and outs of being a utility manager and bring their practical knowledge to the classroom. Our approach is unique and takes the learning experience from theoretical to practical. The Utility Management Certification course is designed to prepare the student for the National Utility Management Certification exam. This course will utilize the study manual provided and produced by NRWA's Water University. CRWA is a state affiliate of NRWA, which is currently the largest utility organization in the country with over 31,000 utility members nationwide.

Wastewater System

PROGRAM GUIDELINES

- A letter of understanding and commitment needs to be signed by both the sponsoring system and the apprentice.
- Courses will be provided monthly in 12-hour blocks or two days per month on a regular schedule.
- The cross-connection tester course will be one week as usual.
- All sponsoring agencies will receive course updates and progress reports.
- Tracking on formal classroom time will be done internally.
- All apprentices will receive course updates and completion schedules monthly.
- Training fees will be assessed annually at the beginning of each year at the cost of \$1,500 per year. This includes all instruction and textbooks. There is an opportunity for utility apprentice's sponsors to have a portion of the apprenticeship salary and benefits paid for up to one year. This will be determined on a system by system basis.



Wastewater System Operations Specialist

FORMAL TRAINING – 288 HOURS TOTAL OVER A 2-YEAR PERIOD

Year 1 Curriculum

Course	CEUs	Course Material
Orientation	6 hours	Program overview
Introduction to Mathematics	12 hours	CRWA Basic Wastewater Math course
Beginning Wastewater Collections Systems	36 hours	Operation and Maintenance of Wastewater Collection Systems, Volume 1 (Sac State)
CMOM and SSMP Regulations	12 hours	CRWA overview of required collection system reporting
Security/Emergency Response	12 hours	State approved ERP and Security training class material
Beginning Wastewater Treatment	36 hours	Operation of Wastewater Treatment Plants, Volume 1 (Sac State)
Confined Space Entry and Gas Chlorination Safety	30 hours	CRWA course (United Rentals coursework)
Total Formal Training Hours	144 hours	

Year 2 Curriculum

Course	CEUs	Course Material
Advanced Mathematics	24 hours	CRWA Advanced Math course
Advanced Wastewater Collections	36 hours	Operation and Maintenance of Wastewater Collection Systems, Volume 2 (Sac State)
Trenching and Shoring Safety Certification	16 hours	OSHA approved training materials United Rentals training
Understanding Wastewater Discharge Permits	8 hours	State materials and system examples
Advanced Wastewater Treatment	36 hours	Operation of Wastewater Treatment Plants, Volume 2 (Sac State)
Utility Management Certification	24 hours	NRWA course and certification
Total Formal Training Hours	144 hours	

CERTIFICATION QUALIFICATIONS

This course will provide the following certifications or the qualifications to test for a certification:

Wastewater Treatment Grades 1-3

The state certification program mandates a minimum of one year's experience to test for the Grade 1 level certification and the experience requirements increase as you test for Grades 2 and 3. The education requirements are all met and/or exceeded by completing the apprenticeships formal training courses.

Confined Space Entry Certification

Trenching and Shoring Certification

Utility Management Certification

Trenching & Shoring Safety Certification Cards

Wastewater System Operations Specialist

YEAR 1 CURRICULUM

Introduction to Mathematics

This session will cover wastewater terms & definitions, measurements, formulas (area and volume), and conversions. This course is appropriate for operators preparing for the Grades 1 or 2 exams or anyone wanting basic wastewater math skills.

Beginning Wastewater Collections

This course is a collection system operation and maintenance course from the operations level. This course is done in a pre-test/post-test format covering collection system maintenance, safety procedures and inspection and testing of collection systems, including repair procedures and safety.

CMOM & SSMP Regulations

This regulation update will focus on recent regulatory actions that require capacity, management, operations and maintenance evaluations or programs set up for your collection systems with specific attention to the SSMP requirements for measuring and reporting spills.

Security/Emergency Response

This course will review the requirements for updating and maintaining your ERP and VA plans for compliance and liability reasons. Students will learn how to effectively create Emergency Response Procedures (ERP) for a variety of potential situations and how to create Emergency Response Plans that address the concerns that your VA will identify in your evaluations.

Beginning Wastewater Treatment

This course will prepare operators to address routine operations and maintenance requirements associated with various lagoon/pond operations, trickling filter, and RBC treatment facilities along with a compressive look at the disinfection requirements for wastewater.

Confined Space Entry and Gas Chlorination Safety

This course is specific to the confined space entry certification and will also include gas chlorination safety as an additional segment to ensure the safety issues are covered. Student will review the confined space entry requirements and test for safety certification for confined space entry. Students will learn to recognize the difference between permitted and non-permitted confined space areas and will know what precautions and documentation is required before and after entry.

YEAR 2 CURRICULUM

Advanced Mathematics

This class enhances wastewater math skills for those who already have developed knowledge of using basic math formulas. Mathematical equations include FM ratios, BOD pounds and removal efficiency, and MLSS calculations. Time is provided to review math problems and allow the participant to find the solution.

Advanced Wastewater Collections

This course prepares students working in more advanced collections system and covers lift station operations, equipment maintenance, collection system rehabilitation and collection system administration.

Trenching and Shoring Safety Certification

This course covers the OSHA mandated safety regulations for trenching and shoring, this course reviews the required equipment and conditions that require shoring your trenches. This course will also cover traffic safety, how to assess soil conditions and safe installation of shoring equipment. This course will provide a certification in trenching and shoring safety.

Understanding Wastewater Discharge Permits

This course instructs and familiarizes the students with discharge permitting requirements, NPDES and WDR language and terminology, mandatory testing and how that is performed including reporting requirements based on treatment type and enforces the need for operations specialist to be sure they understand their own discharge permits.

Advanced Wastewater Treatment

This course will cover the operations of a conventional activated sludge plant, review lab procedures, plant maintenance, safety, sludge digestions, solids handling, applications of computers for plant operations and treatment plant management.

Utility Management Certification

Our field-experienced instructors know the ins and outs of being a utility manager and bring their practical knowledge to the classroom. Our approach is unique and takes the learning experience from theoretical to practical. The Utility Management Certification course is designed to prepare the student for the National Utility Management Certification exam. This course will utilize the study manual provided and produced by NRW's Water University. CRWA is a state affiliate of NRW, which is currently the largest utility organization in the country with over 31,000 utility members nationwide.



CRWA Apprenticeship Program

I request to be provided with and given an opportunity to complete an apprenticeship application for the **California Rural Water Association** Apprenticeship Program and voluntarily provide the following information in consideration of this request.

Name:		
Date of Birth:		
Address:		
City:	State:	Zip:
Phone:		
Email:		
Sex:		
<input type="checkbox"/> Male <input type="checkbox"/> Female		
Race: (check one or more)		
<input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American <input type="checkbox"/> White <input type="checkbox"/> Native Hawaiian or other Pacific Islander		
Ethnic Group: (check one)		
<input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Non-Hispanic or Latino		
Signature		
Upon receipt of completed form by any applicant, employer will immediately forward this form to:		
California Rural Water Association 1234 North Market Blvd., Sacramento, CA 95834 Fax: (916) 553-4904 or Email: info@calruralwater.org If you have any questions, please contact this office at (916) 553-4900.		

California Rural Water Association
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