



California Department of  
Public Health

# WATER DISTRIBUTION OPERATOR CERTIFICATION



August 2008  
Edition

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## About the Operator Certification Program

Since 1971 laws and regulations have been in place requiring the certification of water treatment facility operations. The regulations establish at what level these facilities should be manned, minimum qualifications for testing at each of the five grade levels, and criteria for the renewal and revocation of certificates.



In 1998, the Federal Environmental Protection Agency established guidelines for the certification and re-certification of operators of community and non-transient non-community public water systems. On January 1, 2001, new state regulations were adopted to comply with these guidelines and the existing water treatment operator certification program was modified accordingly.

The new regulations also established a water distribution operator certification program. The Operator Certification Program is now responsible for the testing and the certification of approximately 26,000 water treatment and water distribution operators throughout the state of California.

## What's Inside

This information application package is provided to help you understand the examination & certification process. Please read thoroughly. Enclosed you will find the following:

- Program Contacts
- Water Distribution exam Schedule
- Minimum qualifications for Examination & Certification
- Expected range of knowledge
- List of suggested reading
- Information on Renewals & Continuing Education Requirements
- Information on Specialized Training & Continuing Education hours

## Who to Contact

### **Our mailing address:**

California Dept. of Public Health  
Op Cert Program, MS#7417  
P.O. Box 997377  
Sacramento, CA 95899-7377

### **Application Evaluation:**

If you have any questions regarding the minimum qualifications for examination or certification please contact Karen Hinrichs at (916) 449-5628.

### **Certificate Renewal:**

If you have questions regarding a certificate renewal please contact Steve Bogart at (916) 449-5615.



Visit us Online:

<http://www.cdph.ca.gov/certlic/occupations/Pages/DWopcet.aspx>

# Frequently Asked Questions

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## Who must be certified?

Any individual making decisions addressing the operational activities of a water distribution facility pursuant to subsection 63770(b) of the California Health and Safety Code (CH&SC) must possess a water distribution certificate.

## How do I become a certified operator?

Under the new regulations, becoming certified is a two-step process. First, an application and an examination fee are submitted to participate in the examination. The application is evaluated for the educational portion of the eligibility criterion. If the applicant meets the criterion, the applicant may take the exam. After successfully passing the examination, a second application and filing fee is submitted for certification. Experience as a distribution operator is a requirement for certification above the grade 2 level; therefore, Grade 1 and 2 applicants need only to submit the certification application and fee to become certified. Grade 3, 4, and 5 applicants, however, must meet the required experience criterion before applying for certification. You have three years from the date you passed the exam to apply and meet the experience requirements.



## If I am already certified as a water treatment operator, can I use my treatment certificate to qualify for the water distribution examination?

No. The water treatment and the water distribution certificates are independent of one another. You cannot use one certificate to qualify for the other.

## If I submit an application, but do not qualify for the examination or for certification, will I get a refund of my application fees?

No. The application fee is non-refundable as it is a processing fee. It is best to call the Operator Certification Program first (before you send your money) to get clarification on what the minimum qualifications are, and if you qualify. Your application will not be evaluated over the phone, however the analyst will explain the minimum qualifications clearly enough for you to make your own determination.

## If I am approved to take an examination and don't show up, will I get a refund of my application fees?

No. If you do not show up to an examination you will forfeit your fees and be required to resubmit a new application with the correct fees in order to take the following exam.

# Frequently Asked Questions

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## When the examination application requires verification of specialized training, what information must be submitted?

When specialized training is required you must submit a photo copy of either an official transcript or certificate of completion issued by the college or the IACET provider. The documentation must indicate the name of the course and the number of units (or hours) you were awarded for successful completion of the course. **Remember, only submit a copy of the official transcript or certificate of completion; retain the original for your records.**

## What happens if I appear late for an examination or forget my ID or have improper ID?

If you appear after the exam has started or you are denied admittance because of improper ID, you must sign the proctor's report acknowledging your denial. If you do not sign the proctor's report there will be no record of the denial and verbal claims of denial will not be accepted, you will be marked as a No-Show. The proctor will give you a notice about rescheduling and you must contact this office the Monday following the exam to record your denial.

Once we receive the signed report from the proctor, you will be rescheduled for the following exam. Your application fees will carry over **only** to the next examination. If you do not show up for the rescheduled exam, you will have to reapply and resubmit your full exam fees again.



## What happens to those found cheating during an examination?

Cheating is not tolerated and has consequences. Examinees found cheating will automatically fail the exam and will not be allowed to take either the Water Distribution or Water Treatment examinations for the next two (2) years.

## What kind of specialized training is required to qualify for the educational portion of the examination?

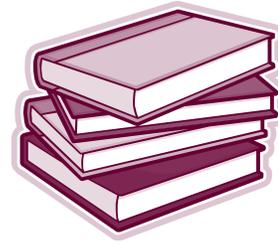
College level courses providing at least 36 hours of continuous formal instruction in drinking water or waste water quality, drinking water or waste water treatment, drinking water distribution, or drinking water or waste water facility operation. Courses must be completed through an accredited academic institution or an organization accredited by the International Association of Continuing Education Training (IACET) or an authorized provider of IACET. Course hours cannot be added together to meet the education requirement.

Grade D1 does not require specialized training, however, grades D2 and above require a minimum amount of specialized training, a portion of which must cover the fundamentals of water supply principles. For more information about specialized training, visit our website to see which courses meet the definition of a water supply principles course and other acceptable specialized training courses.

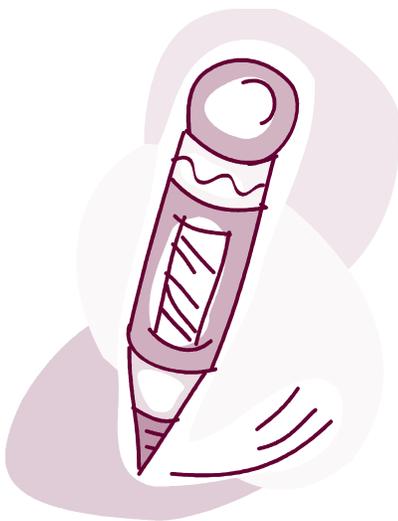
Please keep in mind that once your specialized training course has been accepted for the purpose of meeting the examination requirements, you can continue to submit that course for subsequent examinations.

# Qualifying for Examination

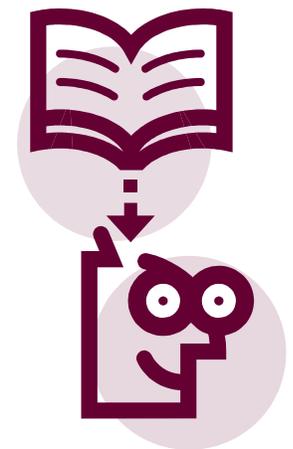
Below is the minimum educational requirements for examination. Specialized training courses must be completed before the application deadline.



Grade	Minimum Educational Qualifications for Examination
D1	<ul style="list-style-type: none"> <li>High School or GED*</li> </ul>
D2	<ul style="list-style-type: none"> <li>High School or GED*</li> <li><b>AND</b></li> <li><u>One 36 contact hour (or 3-unit) course</u> of specialized training covering the fundamentals of water supply principles.</li> </ul>
D3	<ul style="list-style-type: none"> <li>A valid Grade D2 operator certificate.</li> <li><b>AND</b></li> <li><u>Two 36 contact hour (or 3-unit) courses</u> of specialized training that includes at least <b>one course covering the fundamentals of water supply principles.</b></li> </ul>
D4	<ul style="list-style-type: none"> <li>A valid Grade D3 operator certificate.</li> <li><b>AND</b></li> <li><u>Three 36 contact hour (or 3-unit) courses</u> of specialized training that includes at least <b>two courses in water supply principles.</b></li> </ul>
D5	<ul style="list-style-type: none"> <li>A valid Grade D4 operator certificate.</li> <li><b>AND</b></li> <li><u>Four 36 contact hour (or 3-unit) courses</u> of specialized training that includes at least <b>two courses in water supply principles.</b></li> </ul>



\***High School/GED** equivalency for **grades 1 & 2 ONLY** can be fulfilled with **1 year** as an operator of a facility that required an understanding of a piping system that included pumps, valves, and storage tanks.



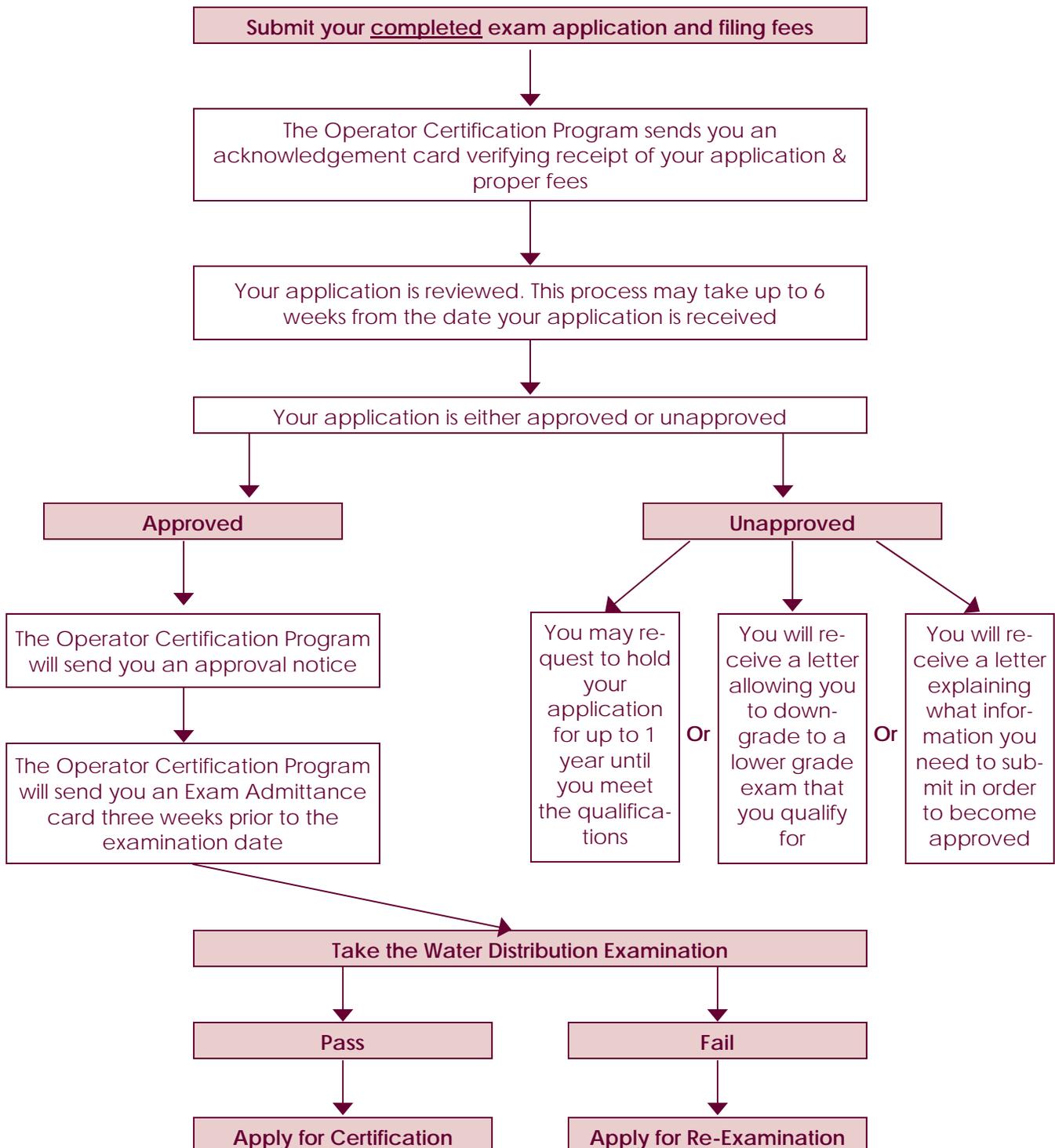
For more information about specialized training, please visit our website at:

<http://www.cdph.ca.gov/certlic/occupations/Pages/DWopcet.aspx>

# Distribution Operator Exam Procedure

Applications for the Exam must be postmarked by the exam deadline. No late applications will be accepted.

When applying for examination, you must provide all your personal information such as your full legal name, address, date of birth, social security number, work & home telephone numbers, and current certification status (operator number, grade, issue date) if applicable.



# Specialized Training

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## Where can I get “specialized training”?

The following is a partial listing of accredited academic institutions and IACET providers of courses in specialized training. You must contact the school directly to see when the next course will be given. Remember, each course must be a minimum of 36 contact hours. This translates to 3 semester units or 3.6 CEU's.

- **Antelope Valley (Lancaster)**  
(661) 722-6300  
Website: [www.avc.edu](http://www.avc.edu)
- **Bakersfield Community College (Bakersfield)**  
(661) 395-4011  
Website: [www.bc.cc.ca.us](http://www.bc.cc.ca.us)
- **California State University, Sacramento**  
(916) 278-6142 (Correspondence courses)  
Website: [www.owp.csus.edu](http://www.owp.csus.edu)
- **CA-NV AWWA Water College**  
(909) 481-4688  
Website: [www.ca-nv-awwa.org](http://www.ca-nv-awwa.org)
- **Citrus College (Glendora)**  
(626) 914-8511  
Website: [www.citrus.cc.ca.us](http://www.citrus.cc.ca.us)
- **College of the Canyons (Santa Clarita)**  
(805) 476-4100  
Website: [www.coc.cc.ca.us](http://www.coc.cc.ca.us)
- **College of the Redwoods (Eureka)**  
(707) 445-6700  
Website: [www.redwoods.edu](http://www.redwoods.edu)
- **College of the Sequoias (Visalia)**  
(559) 730-3700  
Website: [www.sequoias.cc.ca.us](http://www.sequoias.cc.ca.us)
- **Columbia College (Sonora)**  
(209) 588-5100  
Website: <http://columbia.yosemite.cc.ca.us>
- **Cuyamaca College (El Cajon)**  
(619) 660-4000  
Website: [www.cuyamaca.net](http://www.cuyamaca.net)
- **Hartnell Community College (Salinas)**  
(831) 755-6700  
Website: [www.hartnell.cc.ca.us](http://www.hartnell.cc.ca.us)
- **Imperial Valley College (Imperial)**  
(760) 352-8320  
Website: [www.imperial.cc.ca.us](http://www.imperial.cc.ca.us)
- **L.A. Trade Technical College (Los Angeles)**  
(213) 744-9500  
Website: [www.lattc.cc.ca.us](http://www.lattc.cc.ca.us)
- **Mendocino College (Mendocino)**  
(707) 468-3101  
Website: [www.mendocino.cc.ca.us](http://www.mendocino.cc.ca.us)
- **Merced College (Merced)**  
(209) 384-6000  
Website: [www.merced.cc.ca.us](http://www.merced.cc.ca.us)
- **Mt. San Antonio (Walnut)**  
(909) 594-5611  
Website: [www.mtsac.edu](http://www.mtsac.edu)
- **Mt. San Jacinto College (San Jacinto)**  
(909) 487-6752  
Website: [www.msjc.edu](http://www.msjc.edu)
- **OCT, Inc.**  
(888) 863-8916  
Website: [www.octinc.com](http://www.octinc.com)
- **Ohlone College (Fremont)**  
(510) 659-6000  
Website: [www.ohlone.cc.ca.us](http://www.ohlone.cc.ca.us)
- **Palomar Junior College (San Marcos)**  
(760) 744-1150  
Website: [www.palomar.edu](http://www.palomar.edu)
- **Santiago Canyon College (Orange)**  
(714) 628-4901 Admissions  
(714) 628-4883 Career Education Office  
Website: [www.sccollege.edu/watersci](http://www.sccollege.edu/watersci)
- **San Bernardino Valley College (San Bernardino)**  
(909) 888-6511  
Website: <http://sbvc.sbccd.cc.ca.us>
- **Santa Barbara City College (Santa Barbara)**  
(805) 965-0581  
Website: [www.sbcc.cc.ca.us](http://www.sbcc.cc.ca.us)
- **Santa Rosa Junior College (Santa Rosa)**  
(707) 527-4011  
Website: [www.santarosa.edu](http://www.santarosa.edu)
- **Shasta College (Redding)**  
(530) 352-8320  
Website: [www.shasta.cc.ca.us](http://www.shasta.cc.ca.us)
- **Solano Community College (Suisun)**  
(707) 864-7000  
Website: [www.solano.cc.ca.us](http://www.solano.cc.ca.us)
- **Ventura College (Ventura)**  
(805) 654-6339  
Website: [www.ventura.cc.ca.us](http://www.ventura.cc.ca.us)
- **Yuba College, Lake Campus (Clearlake)**  
(707) 995-7900  
Website: <http://lakecampus.org>

# Exam Schedule & Fees

## How often are exams given?

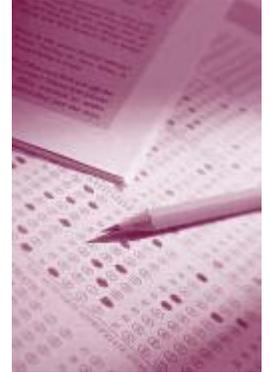
Exams are given twice a year, in March and September. See below for upcoming exam dates and application deadlines for all grades.



### Application Deadline

### Exam Date

July 1, 2013	September 21, 2013
January 1, 2014	March 15, 2014
July 1, 2014	September 20, 2014
January 1, 2015	March 21, 2015
July 1, 2015	September 19, 2015
January 1, 2016	March 19, 2016
July 1, 2016	September 17, 2016



Applications must be postmarked **by** the application deadline date to be considered for the current examination period. **If the deadline falls on a Sunday or federal holiday, applications must be postmarked prior to that date.**

When you are ready to take the exam, be sure to **completely** fill out the application and submit it along with the filing fee by the application deadline. All minimum qualifications (Page 4) must be met by the application deadline date of the examination you wish to participate in. Completed specialized training courses (Grades 2-5) must be verified with **photocopies of official transcripts or certificates of completion**. Incomplete applications could cause a delay in your approval and scheduling for the exam. If you find you don't meet the minimum qualifications, you will have up to one year from the date of submittal to amend your application.

## Exam Locations

Exam sites are within the general vicinity of the cities listed below and are subject to change

Bakersfield	Los Angeles	San Bernardino	Santa Barbara
Eureka	Redding	San Diego	Santa Rosa
Fresno	Sacramento	San Jose	Vallejo

Applicants who qualify for the exam will be notified approximately three weeks prior to the exam date. The notification will contain the location of the exam site and the time of the exam. **Please arrive to the exam site at least 1 (one) hour before the exam is scheduled.**

## Examination Fees

<u>Grade</u>	<u>Exam Fee</u>	<u>Re-Exam Fee</u>
D1	\$50	\$30
D2	\$65	\$45
D3	\$100	\$70
D4	\$130	\$95
D5	\$155	\$120

An examination fee is submitted with the initial application and covers the evaluation of your application and subsequent scheduling for examination; **the re-exam fee applies only if you had previously participated in an examination for the same grade but were not successful in passing.** If you are scheduled for an exam and do not show up to that examination and wish to re-apply, you forfeit your fees and must re-submit the full exam fee.

# Submitting Your Application



Before submitting your application for examination, please ensure that you have completely filled out the application properly, providing all the correct information that is required on the application as shown below.

## APPLICATION FOR WATER DISTRIBUTION OPERATOR EXAMINATION, RE-EXAMINATION, OR EXAMINATION FOR RESTRICTED CERTIFICATE

Operator number	Exam results	Date received
Application approved for D1 D2 D3 D4 D5		
Acknowledgement sent Approval sent		
Application <b>NOT</b> approved		
<input type="checkbox"/> Insufficient specialized training/verification <input type="checkbox"/> High school/GED information incomplete	Certificate dated	Certificate sent
Comments		

PLEASE DO NOT WRITE ABOVE THIS LINE

Please print in blue ink.

1. Personal Information

Name (Last, First, Middle Initial) \_\_\_\_\_ Date of birth \_\_\_\_\_ Social security number \_\_\_\_\_

Mailing address (no P.O. boxes) \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP code \_\_\_\_\_

Work telephone number \_\_\_\_\_ E-mail address \_\_\_\_\_

Are you currently certified by the State of Maryland as a **water distribution operator**?  Yes  No

Operator number \_\_\_\_\_ Grade \_\_\_\_\_ Issue Date \_\_\_\_\_

2. EXAMINATION INFORMATION

This application is for grade \_\_\_\_\_ Fee \_\_\_\_\_ This application is for  Exam  Re-exam Preferred exam site \_\_\_\_\_

Do you have an ADA Title I disability/impairment for which you need specific accommodations to take the exam?  Yes  No  
If yes, please enclose a letter from a professional authorized to make such assessments that describes the specific accommodations that will be required.

Please indicate if your religious beliefs prevent you from taking an exam on Saturday.  Yes  No  
If yes, please enclose a letter from your church stating that you are a member in good standing, and why you cannot participate in a Saturday examination.

If you checked "yes" above, please enclose required letter. Is letter enclosed?  Yes  No

3. HIGH SCHOOL EDUCATION/WORK EXPERIENCE SUBSTITUTION

Did you graduate from high school?  Yes  No If not, do you possess a GED certificate?  Yes  No

Date (month/year) \_\_\_\_\_ Name of school \_\_\_\_\_ Location (city/state) \_\_\_\_\_

If you are applying for a **grade D1 or grade D2 ONLY**, and you do not have a high school diploma or GED certificate, you must have one year of experience as an operator of a facility that requires an understanding of a piping system that includes pumps, valves, and storage tanks. **This experience must be verified with a copy of your utility's official job description.**

From (mm/yyyy) To (mm/yyyy) Name and address of employer \_\_\_\_\_ Supervisor's name \_\_\_\_\_  
Supervisor's telephone number \_\_\_\_\_

Is your official job description enclosed?  Yes  No

### 4. SPECIALIZED TRAINING (For grades 2–5 applicants only. Grade 1 applicants proceed to item 5.)

You must fill in the course information below **AND** attach legible photocopies of **OFFICIAL TRANSCRIPTS** or **CERTIFICATES OF COMPLETION** as proof of attainment of the required course work (certificates of completion must include the number of hours of instruction completed). *Please include only that information which verifies completion of the required course work.* **PLEASE NOTE: COPIES OF REPORT CARDS OR UNOFFICIAL TRANSCRIPTS ARE NOT ACCEPTABLE VERIFICATION OF COURSE WORK.**

**Each course must be a minimum of 3 units or 36 hours of continuous formal instruction and must be provided by an accredited academic institution or an organization accredited by the International Association of Continuing Education Training (IACET).**

**Grade D2 applicants:** One course covering the fundamentals of water supply principles.

**Grade D3 applicants:** Two courses, one of which must be in water supply principles, while the supplemental course can be in drinking water treatment, drinking water or wastewater quality, or drinking water or wastewater facility operation.

**Grade D4 applicants:** Three courses, two of which must be in water supply principles, while the supplemental course can be in drinking water treatment, drinking water or wastewater quality, or drinking water or wastewater facility operation.

**Grade D5 applicants:** Four courses, two of which must be in water supply principles, while the two supplemental courses can be in drinking water treatment, drinking water or wastewater quality, or drinking water or wastewater facility operation.

Water Supply Principle		
Course title	Units/hours	Date completed
Instructor's name	Organization	
Course title	Units/hours	Date completed
Instructor's name	Organization	
Supplemental Course (as stated above)		
Course title	Units/hours	Date completed
Instructor's name	College or organization	
Course title	Units/hours	Date completed
Instructor's name	College or organization	

### 5. SIGNATURE OF APPLICANT

I, the undersigned, certify that I am the above-named applicant, that all statements made on this application are true and correct; that I understand that any misrepresentations may result in ineligibility for the examination applied for or revocation of any certificate granted, pursuant to Section 106876 of the Health and Safety Code.

Original signature (Please sign in blue ink) \_\_\_\_\_ Date \_\_\_\_\_

### • Personal Information:

- Full name
- Date of birth
- Social security number
- Mailing address
- Work, home and/or cell number
- Certification status (if applicable)

### • Examination Information:

- Grade you are applying for
- Exam filing fee (Page 7)
- Exam type (Exam or Re-Exam)
- Preferred exam site (Page 7)

### • High School Education / Work Experience (please note that a high school transcript is not needed):

- Graduation / GED status
- Date graduated
- Name of school
- Location of school

If you do not have a high school diploma or GED certificate, you must have one year of experience as an operator of a facility that requires an understanding of a piping system that includes: pumps, valves and storage tanks. **This experience must be verified by submitting a copy of your utility's official job description on company letterhead.**

### • Specialized Training:

For grades 2-5, legible photocopies of an official transcript or certificates of completion must be included with the application. Certificates of completion must include the number of hours of instruction completed. **Copies of report cards and unofficial (printed off the internet) transcripts are not acceptable.**

### • Signature of Applicant:

Applicant's signature and date are required to process your application. Please sign in blue ink. Photocopies or faxed copies of the application are not acceptable.

# Submitting Your Application (continued)

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30% to 40% of the exam applications received are initially sent back because of the following:

- Application is not completely filled out.
- Verification of course work is not attached.
- Application is not signed.
- Payment is not enclosed or the wrong amount is sent.

Please make sure all minimum qualifications (Page 4) are completed by the application deadline as **filing fees are non-refundable**. If you find you do not meet the minimum qualifications, you will have up to one (1) year from the date of submittal to amend your application.

Mail your completed application along with the proper filing fees (accepted in the form of check or money order only) payable to **CDPH-OCP** (cash or credit cards are not accepted) to:

**California Dept. of Public Health  
Op Cert Program, MS #7417  
P.O. Box 997377  
Sacramento, CA 95899-7377**

**Please Note:**

\*If for any reason your check does not clear, you will not be scheduled for the application until all applicable fees have been paid.

**If I have a Title 1, ADA disability that allows me special testing accommodations, what documentation must I submit with my application to be allowed such accommodations?**

Before being considered for special testing accommodations, you must submit a doctor's or authorized professional's written evaluation on official letterhead (original only, no copies) stating the type of accommodation and the reason for the accommodation. Documentation must accompany your application. You will be contacted regarding special testing arrangements.



# Water Distribution Exam

## Expected Range of Knowledge

Exam Content Grade	number of questions				
	D1	D2	D3	D4	D5
<b>DISINFECTION</b>	15	20	20	15	10
<b>DISTRIBUTION SYSTEM DESIGN / HYDRAULICS</b>	20	20	15	10	10
<b>EQUIPMENT OPERATION / MAINTENANCE / INSPECTIONS</b>	20	20	25	20	15
<b>DRINKING WATER REGULATIONS / MANAGEMENT / SAFETY</b>	15	10	15	35	45
<b>WATER MAINS AND PIPING</b>	20	20	15	5	5
<b>WATER QUALITY/WATER SOURCE</b>	10	10	10	15	15
	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

### **Disinfection**

Water Main Disinfection, Well Disinfection, Disinfectant By-Products, Chloramination, Chlorine Curve Chemistry, Storage Reservoir Disinfection, Types of Disinfectants

### **Distribution System Design / Hydraulics**

System Layout, Storage Facilities, Cross-Connection and Backflow Devices, Service Connections, Systems Map, Assess System Demand, Flow Rates and Velocity, Head Loss, Cavitation, Water Hammer, Water Pressure and Volume, Static and Dynamic Pressure

### **Drinking Water Regulations/Management / Safety**

Disinfection-By-Product Rule, Lead and Copper Rule, MCLs, Monitoring and Sampling Requirements, Public Notification, Safe Drinking Water Act, Total Coliform Rule, Operator Certification Regulations, Administer Compliance, Budgets, Emergency Response Planning, Future Planning, Maintenance Plan, Safety Plan, Water Conservation Planning, Water Rates

### **Equipment Operation / Maintenance / Inspections**

Valves, Water Meters, Hydrants, Chemical Feeders, Corrosion, In-Line Sensors, Power Generators, SCADA, Pump Types, Uses, and Sizes, Troubleshoot and Repair Pumps and Motors, Water Horsepower, Inspection of Water Mains, Piping, Storage Tanks, and Equipment Installation and Repair, Wells (new and abandoned)

### **Water Mains and Piping**

Cleaning and Maintenance, Excavation, Installation, and Repair, Joints and Fittings, Leak Detection and Repair, Pipe Selection, Service Line Installation

### **Water Quality / Water Sources**

Coliform Group, Corrosivity, Heterotrophic Bacteria, Organic and Inorganic Contaminants, pH, Conductivity, Hardness, and Turbidity, Unidirectional Flushing, Waterborne Diseases, Groundwater, Wells, Sanitary Survey

\*(Items marked "1-5" may be on the D1 – D5 exams)

\*\* (Items marked "2-5" may be on the D2 – D5 exams but not on the D1 exam)

## ***Disinfection***

### Water Main Disinfection

- 1-5 Knowledge of water main disinfectant techniques
- 1-5 Knowledge of dechlorination techniques
- 1-5 Ability to apply disinfectant
- 1-5 Knowledge of AWWA disinfection standards for water mains

### Well Disinfection

- 1-5 Knowledge of contamination sources in a well
- 1-5 Ability to calculate a disinfectant dosage
- 1-5 Knowledge of well disinfection techniques
- 1-5 Knowledge of water depth measurement techniques
- 1-5 Knowledge of AWWA disinfection standards for wells
- 1-5 Ability to measure the water depth in a well
- 1-5 Ability to calculate the volume of a well

### Storage Reservoir Disinfection

- 1-5 Knowledge of water storage contamination sources
- 1-5 Ability to calculate the volume of a storage reservoir
- 1-5 Knowledge of storage reservoir disinfection techniques
- 1-5 Knowledge of AWWA disinfection standards for storage facilities
- 1-5 Ability to calculate a disinfectant dosage
- 2-5 Ability to choose the proper disinfectant technique
- 2-5 Ability to calculate the surface area of the interior walls of a storage reservoir
- 3-5 Ability to calculate CT

### Disinfectant By-Products

- 2-5 Knowledge of the causes of DBPs
- 3-5 Knowledge of DBP reduction methods
- 3-5 Knowledge of DBP formation
- 3-5 Knowledge of DBP compounds
- 3-5 Ability to recognize abnormal levels DBPs in the water distribution system

### Chloramination

- 1-5 Ability to measure total chlorine
- 2-5 Knowledge of the chlorine curve
- 2-5 Knowledge of advantages/disadvantages of chloramination
- 2-5 Knowledge of chloramine compounds
- 2-5 Ability to calculate chlorine/ammonia ratio for chloramination

### Chlorine Curve Chemistry

- 2-5 Knowledge of the definition of breakpoint chlorination
- 2-5 Knowledge of the chlorine curve
- 2-5 Ability to recognize when breakpoint has been met

## Types of Disinfectants

- 1-5 Knowledge of the purpose of disinfection
- 1-5 Knowledge of contact time
- 1-5 Knowledge of causes of chlorine demand
- 1-5 Ability to monitor and interpret chlorine residual
- 1-5 Ability to calculate a dosage
- 2-5 Knowledge of disinfectant types and characteristics
- 2-5 Knowledge of factors affecting chlorine disinfection
- 2-5 Knowledge of chlorine analysis techniques
- 3-5 Knowledge of chlorine chemistry

## ***Distribution System Design / Hydraulics***

### Assess System Demand

- 1-5 Knowledge of unit conversions
- 2-5 Knowledge of the terms "peak demand," "peak hour demand," "maximum daily demand," and "per-capita demand"

### Cross-Connection and Backflow Devices

- 1-5 Knowledge of conditions that cause backflow
- 1-5 Knowledge of available backflow prevention methods
- 1-5 Knowledge of "back-pressure" and back-siphonage" conditions
- 1-5 Ability to recognize a potential backflow hazard
- 1-5 Ability to recognize a cross-connection

### Service Connections

- 1-5 Knowledge of service connection materials and fittings
- 1-5 Ability to tap a water main
- 2-5 Knowledge of record keeping requirements

### Storage Facilities

- 1-5 Ability to calculate the volume of a storage facility
- 1-5 Ability to calculate flow rates for a storage facility
- 2-5 Knowledge of the types of storage facilities and their applications
- 2-5 Knowledge of storage facility corrosion control methods
- 2-5 Knowledge of storage facility components
- 2-5 Ability to drain, clean and disinfect a storage facility

### System Layout

- 1-5 Knowledge of "grid," "tree," "arterial," and "dead end" water systems
- 2-5 Ability to differentiate between a "trunk" line and a "transmission" line
- 4-5 Ability to calculate the hydraulic gradient

## System Maps

- 1-5 Knowledge of pressure / elevation relationships
- 2-5 Knowledge of map types
- 2-5 Ability to interpret map symbols
- 2-5 Ability to convert a scale to actual distance

## Flow Rates and Velocity

- 1-5 Ability to convert units of volume, area, and time
- 1-5 Ability to calculate the volume of a pipe
- 1-5 Ability to calculate the area of a pipe cross-section
- 1-5 Ability to calculate a flow rate
- 2-5 Ability to calculate water velocity

## Head Loss

- 2-5 Knowledge of the relationship between head loss and friction
- 3-5 Knowledge of the effect of corrosion on head loss

## Cavitation

- 2-5 Knowledge of the causes of cavitation
- 2-5 Ability to recognize the signs of cavitation

## Water Hammer

- 1-5 Knowledge of water hammer reduction techniques
- 1-5 Knowledge of the definition of water hammer
- 1-5 Knowledge of the causes of water hammer
- 1-5 Ability to calculate the surface area of a valve face
- 2-5 Ability to calculate total force on a valve

## Water Pressure and Volume

- 1-5 Ability to convert units of volume, pressure, and area
- 1-5 Ability to calculate the volume of a cylinder, rectangle and square

## Static and Dynamic Pressure

- 1-5 Knowledge of the relationship between water velocity and water pressure
- 1-5 Ability to recognize abnormal pressure readings, (too high or too low)
- 1-5 Ability to read and interpret a pressure gauge
- 1-5 Ability to convert pressure to feet of head

## ***Drinking Water Regulations / Management / Safety***

### Disinfection-By-Product Rule

- 2-5 Knowledge of the Disinfectant By-Product Rule sampling requirements
- 3-5 Knowledge of Disinfectant By-Product Rule reporting requirements
- 3-5 Knowledge of Disinfectant By-Product Rule MCL requirements

### Lead and Copper Rule

- 1-5 Ability to take a lead and copper sample
- 3-5 Knowledge of lead and copper sampling requirements
- 3-5 Knowledge of lead and copper rule reporting requirements
- 4-5 Ability to recognize a lead and copper rule violation

### Maximum Contaminant Levels (MCL)

- 1-5 Knowledge of the definition of MCL
- 2-5 Knowledge of maximum disinfectant residual level for chlorine
- 2-5 Ability to differentiate between a primary and secondary MCL
- 2-5 Ability to recognize MCL violations

### Monitoring and Sampling Requirements

- 1-5 Ability to read a sample siting plan
- 1-5 Knowledge of water sampling techniques for bacteriological, organic, and inorganic constituents
- 1-5 Knowledge of holding times (e.g., preservatives)

### Operator Certification Regulations

- 1-5 Knowledge of certification requirements

### Public Notification

- 1-5 Knowledge of acute violations
- 1-5 Knowledge of when public notification is required
- 4-5 Knowledge of required language to use
- 4-5 Knowledge of notification paths (e.g., newspaper, electronic)

### Safe Drinking Water Act

- 1-5 Knowledge of the purpose of the SDWA
- 1-5 Knowledge of the major components of the SDWA
- 2-5 Knowledge of reporting and recordkeeping requirements
- 3-5 Knowledge of non-compliance penalties

### Total Coliform Rule

- 1-5 Knowledge of Total Coliform Rule sampling requirements
- 1-5 Knowledge of Total Coliform Rule reporting requirements

### Administer Compliance, Budgets

- 1-5 Knowledge of OSHA / Cal-OSHA safety regulations
- 1-5 Knowledge of CDPH Water Quality regulations
- 3-5 Ability to calculate the cost of water production
- 5 Knowledge of RWQCB discharge requirements
- 5 Knowledge of Air Quality Management regulations
- 5 Knowledge of the components of a budget (e.g., revenues, expenditures, risk management, insurance costs, depreciation)
- 5 Knowledge of O & M budget components (e.g., labor, professional services, supplies, energy, water, capital improvement)

### Emergency Response Planning

- 1-5 Knowledge of the components of the Emergency Response Plan
- 1-5 Knowledge of system pressure zones
- 2-5 Knowledge of AWWA disinfection standards
- 3-5 Knowledge of the vulnerability assessment
- 3-5 Knowledge of public notification requirements
- 3-5 Ability to train personnel on emergency response procedures
- 3-5 Ability to perform damage assessment and recovery planning

### Future Planning

- 4-5 Knowledge of long-term water availability
- 4-5 Knowledge of capital improvement / capital replacement requirements
- 4-5 Ability to estimate future water needs

### Maintenance Plan

- 1-5 Knowledge of predictive, preventive, and corrective maintenance
- 1-5 Knowledge of maintenance record keeping
- 2-5 Knowledge of fire hydrant testing program
- 2-5 Knowledge of valve exercise program

### Safety Plan

- 1-5 Knowledge of the elements of a safety program (e.g., policy statement, training, promotion, accident investigation, reporting)
- 1-5 Knowledge of safety regulation requirements (e.g., IIPP)
- 3-5 Knowledge of record keeping / reporting requirements to OSHA
- 4-5 Ability to develop and implement a safety plan

### Water Conservation Planning

- 3-5 Knowledge of energy conservation methods
- 4-5 Ability to conduct a water audit
- 4-5 Ability to calculate water production costs
- 4-5 Ability to calculate a water loss rate

### Water Rates

- 5 Knowledge of water use projection methods
- 5 Knowledge of water rate structures, water rate setting methods
- 5 Knowledge of local water usage patterns
- 5 Ability to calculate annual expenditures

## Safety

- 1-5 Knowledge of trenching safety equipment and procedures
- 1-5 Knowledge of traffic control procedures
- 1-5 Knowledge of personal safety equipment and procedures
- 1-5 Knowledge of hazardous material safety equipment and handling
- 1-5 Knowledge of fire safety equipment and procedures
- 1-5 Knowledge of electrical safety equipment and procedures
- 1-5 Knowledge of confined space safety equipment and procedure
- 1-5 Knowledge of chemical handling safety equipment and procedures
- 1-5 Knowledge of AC pipe handling procedures
- 1-5 Knowledge of the relapse cycle
- 1-5 Ability to recognize a confined space

## ***Equipment Operation / Maintenance / Inspections***

### Valves

- 1-5 Knowledge of proper valve installation
- 1-5 Knowledge of valve types and applications
- 1-5 Knowledge of the principles of operation of valves
- 1-5 Knowledge of pressure regulating valve maintenance
- 1-5 Ability to recognize a malfunctioning valve
- 2-5 Knowledge of pressure ratings

### Water Meters

- 1-5 Knowledge of water meter types and purposes
- 1-5 Ability to convert water units
- 1-5 Ability to choose the correct meter size
- 2-5 Knowledge of mechanical parts of water meter

### Hydrants

- 1-5 Knowledge of thrust blocks
- 1-5 Knowledge of pressure requirements
- 1-5 Knowledge of mechanical parts of hydrants
- 1-5 Knowledge of hydrant types
- 1-5 Ability to flush using a hydrant

### Chemical Feeders

- 1-5 Ability to read a graduated cylinder
- 1-5 Ability to calculate a dosage
- 2-5 Knowledge of chemical feeder types
- 2-5 Knowledge of chemical feeder components
- 2-5 Ability to troubleshoot a chemical feeder

### Corrosion

- 2-5 Knowledge of type and applications of cathodic protection devices
- 3-5 Knowledge of the galvanic series
- 3-5 Knowledge of principles of operation of cathodic protection devices

## In-Line Sensors

- 2-5 Knowledge of required reagents and standards
- 2-5 Knowledge of analysis methods
- 2-5 Ability to recognize normal operation of in-line sensors

## Power Generators

- 1-5 Knowledge of start-up procedures
- 1-5 Knowledge of basic operation
- 4-5 Knowledge of power requirements (e.g., efficiency)

## SCADA

- 2-5 Knowledge of the components of a SCADA system
- 2-5 Knowledge of communication techniques
- 2-5 Ability to interpret SCADA information

## Pump Types, Uses, and Sizes

- 1-5 Knowledge of pump types
- 2-5 Knowledge of operational principles of a water pump
- 3-5 Ability to match pump type to application
- 3-5 Ability to interpret a pump curve

## Troubleshoot and Repair Pumps and Motors

- 1-5 Ability to recognize abnormal pump operating conditions
- 2-5 Knowledge of the mechanical components of pumps and motors
- 2-5 Knowledge of pump maintenance procedures
- 2-5 Ability to repair and replace pump and motor system components
- 3-5 Knowledge of record keeping requirements
- 3-5 Knowledge of when to "MEG" a motor

## Water Horsepower

- 3-5 Ability to calculate pump efficiency
- 3-5 Ability to calculate brake-horsepower
- 4-5 Ability to calculate the cost of pumping water

## Inspection of Water Mains and Piping

- 1-5 Knowledge of proper backfill procedures and compaction
- 1-5 Knowledge of proper bedding techniques
- 1-5 Knowledge of pipe connectors and applications
- 1-5 Knowledge of compatible materials
- 1-5 Ability to recognize faulty or damaged pipe
- 1-5 Ability to recognize abnormal operating conditions
- 2-5 Knowledge of proper thrust restraint
- 2-5 Knowledge of proper disinfection techniques
- 2-5 Knowledge of allowable leak loss

## Inspection of Storage Tanks

- 1-5 Knowledge of security procedures / measures
- 1-5 Knowledge of safety equipment requirements
- 3-5 Knowledge of storage tank corrosion control measures

### Inspection of Equipment Installation and Repair

- 1-5 Knowledge of proper valve installation
- 1-5 Knowledge of proper hydrant installation
- 1-5 Knowledge of hydrant valve operation/testing
- 2-5 Knowledge of thrust restraint requirements
- 2-5 Knowledge of packing gland settings
- 3-5 Knowledge of proper pump alignment
- 3-5 Knowledge of proper phase balance

### Inspection of Wells (New and Abandoned)

- 1-5 Ability to calculate draw down
- 2-5 Knowledge of proper installation of a sanitary seal on a well
- 3-5 Ability to calculate specific yield
- 4-5 Knowledge of well abandonment procedures and permit requirements
- 4-5 Knowledge of proper gravel packing and screen depth
- 5 Knowledge of permit requirements

## ***Water Mains and Piping***

### Cleaning and Maintenance

- 1-5 Knowledge of proper flushing procedures
- 1-5 Knowledge of notification requirements
- 1-5 Ability to set up a temporary service line
- 2-5 Knowledge of the causes and affects of tuberculation
- 2-5 Knowledge of pipe cleaning procedures
- 3-5 Ability to recognize tuberculation
- 3-5 Ability to choose the proper cleaning technique

### Excavation, Installation, and Repair

- 1-5 Knowledge of bedding techniques
- 1-5 Knowledge of proper backfill procedures
- 1-5 Knowledge of notification requirements
- 1-5 Knowledge of excavating techniques
- 1-5 Knowledge of compaction tools and methods
- 1-5 Knowledge of Cal-OSHA trenching and shoring requirements
- 1-5 Ability to operate a dewatering pump
- 1-5 Ability to connect water pipe
- 1-5 Ability to calculate the volume of a trench
- 2-5 Knowledge of dewatering techniques
- 2-5 Ability to identify different soil types

### Joints and Fittings

- 1-5 Knowledge of proper joints and fitting applications
- 1-5 Knowledge of pipe fitting and joining methods
- 2-5 Knowledge of proper thrust block uses
- 2-5 Ability to choose the correct type of joint
- 2-5 Ability to calculate thrust block size

### Leak Detection and Repair

- 1-5 Knowledge of pipe locating methods
- 2-5 Knowledge of leak detection methods
- 2-5 Knowledge of factors affecting leak detection

### Pipe Selection

- 1-5 Knowledge of pipe material and applications
- 1-5 Knowledge of pipe material compatibility
- 2-5 Knowledge of advantages / disadvantages of pipe material
- 2-5 Knowledge of "C-Factor"
- 2-5 Ability to calculate the velocity of water
- 2-5 Ability to calculate pipe capacity
- 3-5 Knowledge of flow demand requirements

### Service Line Installation

- 1-5 Knowledge of material compatibility
- 1-5 Ability to flush a service line
- 1-5 Ability to differentiate pipe tap size
- 1-5 Ability to differentiate meter size
- 1-5 Ability to calculate pipe volumes
- 2-5 Knowledge of tapping tools / equipment
- 2-5 Knowledge of tapping methods

## ***Water Quality / Water Sources***

### Coliform Group

- 1-5 Knowledge of the definition of pathogenic organisms
- 1-5 Knowledge of coliform bacteria types
- 1-5 Knowledge of coliform analysis methods
- 1-5 Ability to interpret coliform test results
- 2-5 Knowledge of the use of coliform as a surrogate

### Determination of Corrosivity

- 2-5 Ability to recognize corrosive conditions in the distribution systems
- 2-5 Knowledge of the effect of corrosion in a distribution system
- 2-5 Knowledge of the causes of corrosion in a water distribution system
- 3-5 Knowledge of the relationship between corrosion and lead/copper concentrations
- 3-5 Knowledge of the Langlier index
- 3-5 Knowledge of corrosion control techniques
- 4-5 Ability to interpret a Langlier Index

### Heterotrophic Bacteria

- 2-5 Knowledge of the effects of heterotrophic bacteria in a distribution system
- 2-5 Knowledge of heterotrophic bacteria

## Organic and Inorganic Contaminants

- 1-5 Knowledge of the impacts of high nitrate concentrations in the distribution system
- 2-5 Knowledge of nitrate formation in the distribution system
- 3-5 Knowledge of sources of organic contaminants in a distribution system
- 3-5 Knowledge of sources of inorganic contaminants in a distribution system
- 3-5 Knowledge of common organic contaminant compounds
- 3-5 Knowledge common inorganic contaminant compounds

## pH, Conductivity, Hardness, and Turbidity

- 1-5 Knowledge of the meaning of high levels of turbidity in a distribution system
- 1-5 Knowledge of normal pH range in drinking water
- 1-5 Ability to recognize abnormal turbidity levels in a distribution system
- 1-5 Ability to recognize abnormal pH levels of water in a distribution system
- 2-5 Knowledge of the effects of hardness in a distribution system
- 2-5 Knowledge of the affect of abnormal pH levels in the distribution system

## Unidirectional Flushing

- 1-5 Knowledge of the impacts of flushing on a water distribution system
- 1-5 Knowledge of proper flushing velocities
- 1-5 Knowledge of equipment used for flushing
- 2-5 Knowledge of flushing techniques
- 2-5 Ability to recognize when flushing is required
- 2-5 Ability to calculate a water velocity
- 3-5 Knowledge of permit requirements for flushing

## Waterborne Diseases

- 2-5 Knowledge of potential waterborne diseases
- 2-5 Ability to distinguish between presumptive and confirmed results

## Groundwater/ Wells

- 1-5 Knowledge of the hydrologic cycle
- 1-5 Ability to measure well depth
- 2-5 Knowledge of zone of influence
- 2-5 Knowledge of well protection
- 2-5 Knowledge of well components and terms
- 2-5 Knowledge of water table fluctuations
- 2-5 Knowledge of static and pumping water level
- 2-5 Knowledge of recovery time
- 2-5 Knowledge of cone of depression
- 2-5 Ability to recognize potential sources of contamination
- 2-5 Ability to convert a pressure reading to depth of water
- 3-5 Knowledge of well location requirements
- 3-5 Knowledge of the chemical components of groundwater
- 4-5 Knowledge of the characteristics of aquifers

## Sanitary Survey

- 1-5 Ability to recognize potential sources of contamination
- 4-5 Knowledge of sanitary survey requirements

## **Water Math**

- 1-5 Ability to convert water units
- 1-5 Ability to convert units of volume, area, pressure and time
- 1-5 Ability to convert pressure to feet of head
- 1-5 Ability to calculate a disinfectant dosage
- 1-5 Ability to measure the water depth in a well
- 1-5 Ability to calculate well draw down
- 1-5 Ability to calculate the volume of a cylinder, rectangle and square
- 1-5 Ability to calculate the volume of a well, storage reservoir, pipe, trench
- 1-5 Ability to calculate flow rates
- 1-5 Ability to calculate the area of a pipe cross-section
- 1-5 Ability to calculate the surface area of a valve face
- 2-5 Ability to calculate total force on a valve
- 2-5 Ability to calculate water velocity
- 2-5 Ability to calculate pipe capacity
- 2-5 Ability to calculate the surface area of the interior walls of a storage reservoir
- 2-5 Ability to convert a scale to actual distance
- 2-5 Ability to convert a pressure reading to depth of water
- 2-5 Ability to calculate chlorine/ammonia ratio for chloramination
- 2-5 Ability to calculate thrust block size
- 3-5 Ability to calculate specific yield of a well
- 3-5 Ability to calculate CT
- 3-5 Ability to calculate pump efficiency
- 3-5 Ability to calculate brake-horsepower
- 3-5 Ability to calculate the cost of water production
- 4-5 Ability to calculate the cost of pumping water
- 4-5 Ability to estimate future water needs
- 4-5 Ability to calculate the hydraulic gradient
- 4-5 Ability to calculate water production costs
- 4-5 Ability to calculate a water loss rate
- 5 Ability to calculate annual expenditures

# Recommended Study Materials

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## D1

Water Distribution Operator Training Handbook; 1999, American Water Works Association (AWWA). The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200

Small Water System Operation and Maintenance; California State University, Sacramento (Office of Water Programs, Ken Kerri, Director), CSUS, 6000 J Street, Sacramento, CA 95819-6025; Phone: (916) 278-6142.

Water Distribution System Operation and Maintenance; California State University, Sacramento (Office of Water Programs, Ken Kerri, Director), CSUS, 6000 J Street, Sacramento, CA 95819-6025; Phone: (916) 278-6142.

Basic Science Concepts and Applications; (Principles and Practices of Water Supply Operations), 1996, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200

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## D2

Water Distribution Operator Training Handbook; 1999, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200

Water Distribution System Operation and Maintenance; California State University, Sacramento (Office of Water Programs, Ken Kerri, Director), CSUS, 6000 J Street, Sacramento, CA 95819-6025; Phone: (916) 278-6142.

Basic Science Concepts and Applications; (Principles and Practices of Water Supply Operations), 1996, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200

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## D3

Water Transmission and Distribution; (Principles and Practices of Water Supply Operations), 1996, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200.

Water Distribution Operator Training Handbook; 1999, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200.

Water Sources; (Principles and Practices of Water Supply Operations), 1996, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200.

Water Quality; (Principles and Practices of Water Supply Operations), 1996, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200.

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## D4

Water Utility Management Practices (M5); 1980, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200.

Safety Practices for Water Utilities (M3); 1990, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200

Emergency Planning for Water Utilities (M19); 2001, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200

State and Federal laws and regulations related to the water industry, i.e. Labor (FLSA), Environment and Fiscal Controls.

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## D5

Principles of Water Rates, Fees and Charges (M1); 1991, AWWA. The Water College Bookstore, 10574 Acacia Street, Suite D6, Rancho Cucamonga, CA 91730. Phone: (909) 481-7200

State and Federal laws and regulations related to the water industry, i.e. Labor (FLSA), Environment and Fiscal Controls.

# Taking the Examination

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## What do I need to bring with me to the examination?

- Exam Admittance Card
- Valid government issued photo ID:  
(Picture ID is mandatory for admittance into the exam. Acceptable forms of ID are driver's license, DMV non-driver ID, current U.S. passport, or military ID)
- Your social security number:  
(It is not necessary to bring the card, but have the number memorized)
- Simple electronic calculator:  
(No programmable calculators or calculators with large displays and/or tape print-out are allowed)
- No. 2 pencils with erasers:  
(Bring a small supply, 2-5)

## Exam Helpful Hints

The certification exams are composed of multiple choice questions, some requiring math calculations. Try to arrive at a reasonable conclusion without first looking at the answers.

- **Be Prepared:**

The first step in passing a certification exam is to prepare in advance by studying the information that will be covered in the test. (The Expected Range of Knowledge will tell you what will be covered on each exam.)

When preparing for the test, remember that exams are changed frequently. Do not try to learn the answers to specific problems that you may have heard about. Concentrate on learning how to work various types of problems. By doing this you will be prepared to handle any questions on the test, not just certain questions you have memorized.

Preparing for the exam is an ongoing effort; do not try to "cram" all the information you'll need to know into a few days of study time. Cramming usually doesn't help much, and it can lead to confusion and frustration.

- **Exam Day:**

Leave in plenty of time and have the driving directions or a map handy. Make sure you have the necessary materials (listed above) needed for the exam. You will need to be at the testing site at least one hour before the start time to ensure that you check-in to the exam on time. The test starts promptly at the time indicated on your admittance card. **Once the proctor begins the instructions, no one will be admitted.** Also, remember to put fresh batteries in your calculator. No calculators will be available to rent or borrow.

Before starting the test, and after given permission by the proctor, skim through the questions to get a general idea of the kinds of questions that are on the test. By seeing the types of questions and math problems you must answer at the start, you will have a better idea of how to use your time. It is a good idea to answer all easy questions first and then tackle the difficult problems that will take more time to complete.

- **Math Problems:**

Since math problems are an important and often difficult part of the exam, the following are guidelines which might prove helpful:

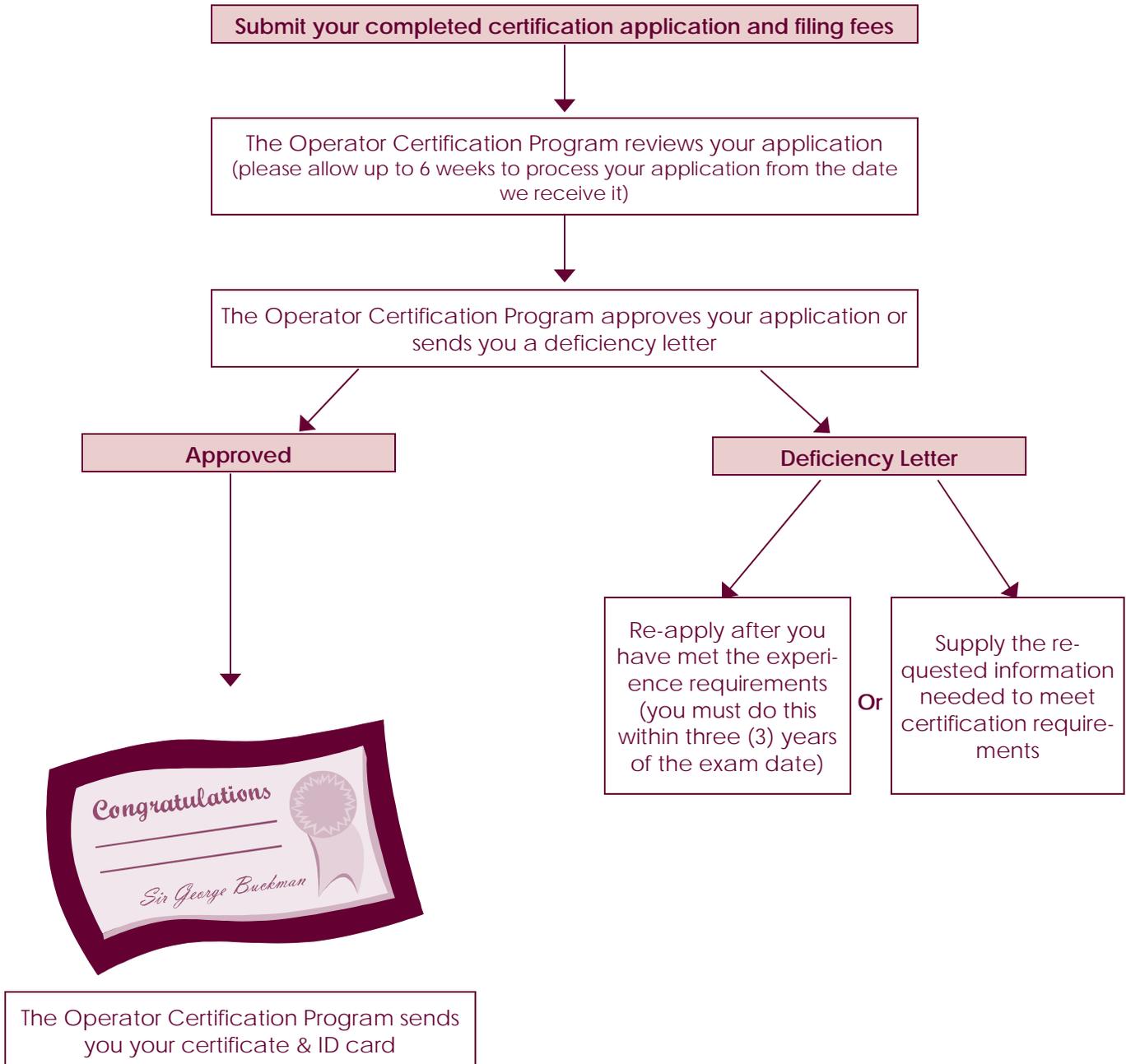
- Read each question carefully to be sure that you know what answer is required.
- If necessary, make a drawing or sketch to help you solve the problem.
- Make all necessary conversions.
- Show all your work.
- Use the appropriate units throughout the problem.
- Be sure the decimal point is in the right place.

You are given three (3) hours to take the exam. Don't try to rush thru the exam. If you finish the exam early, skim through your answer or go back to any questions that you may have had a hard time working on. You may find that looking back on your previous answers may improve your score. Remember, you need a total score of 70% or higher to pass the exam.

# Distribution Operator Certification Procedure

After successfully passing an exam, you will receive a notice to apply for your certification. Grade 1 & 2, just complete the notice and mail it back with the proper fees. Grades 3—5 will be sent an application and further instruction on the requirements to obtain certification.

Applications can be submitted up to three (3) years after the date of the exam you passed. This allows you



# Distribution Operator Certification

Once you receive notice that you have successfully pass the water distribution exam, you may apply for certification. **Please note, the certification application is not available online, we will send it to you upon passing your examination.** For grades 1 & 2, simply fill out the bottom portion of the notice and return it with the appropriate fee in order to obtain your certificate. **Remember, you are not considered a certified operator until you receive your certificate, after applying and submitting the proper information.** For grades 3—5, a second application must be submitted, along with the certification fee and pre-requisite documentation verifying experience requirements have been fulfilled.

Operators that currently hold a valid California water treatment certificate only need to pay the discounted dual certification fee. Below is a chart listing the fees for each certification grade level.

<u>Grade</u>	<u>Certification Fee</u>	<u>Dual Certification Fee</u>
D1	\$70	\$55
D2	\$80	\$60
D3	\$120	\$90
D4	\$140	\$105
D5	\$140	\$105



## Certification Application Content

Before submitting your application for certification, please make sure you have completely filled it out. **50% of the applications are initially sent back because of missing information.** Please refer to the checklist below to review your application for completeness.

## Certification Application Checklist

- All personal information must be filled out.
- Certification fee (see chart above; in form of money order or check only)
- For each timeframe of employment claimed, you must state the number of hours per week spent performing water distribution duties and provide a copy of the job description issued by the water utility.
- For each timeframe of employment claimed, you must provide an organizational chart originating from the water utility which includes your name and position title along with your supervisor's name and position title.
- The original signature of your current (or past) supervisor verifying any experience claimed.
- Your signature (original signature)

You are allowed to substitute some experience with education. You must include a photocopy of an official transcript showing attainment of certificate of degree. Please refer to the chart on the next page for allowable experience substitution.

If your degree is from another country (and the transcript is not in English) you must submit a translated copy of your transcript for your application to be evaluated. This translation must be done by an organization authorized to make such an assessment.

# Qualifying for Certification

## Minimum Experience Qualifications for Certification

Before submitting an application for certification, please make sure all experience requirements are completed as the **filing fees are non-refundable**. Applications for certification that do not meet the requirements may re-apply within 12 months of the original submittal date without payment of an additional certification fee. **You have three (3) years from the date of exam you passed to apply and qualify for certification.**

Minimum Qualifications for Certification
<ul style="list-style-type: none"><li>• Successful completion of the <b>Grade D1</b> operator examination within the three years prior to submitting the application for certification.</li></ul>
<ul style="list-style-type: none"><li>• Successful completion of the <b>Grade D2</b> operator examination within the three years prior to submitting the application for certification.</li></ul>
<ul style="list-style-type: none"><li>• Successful completion of the <b>Grade D3</b> operator examination within the three years prior to submitting the application for certification, <b>AND:</b><ol style="list-style-type: none"><li>1. At least <b>one year</b> of operator experience working as a certified D2 operator for a D2 system or higher (no substitutions) <b>AND;</b></li><li>2. At least <b>one additional year</b> of operator experience working as a distribution operator (may be substituted with (1) or (2) below)</li></ol></li></ul>
<ul style="list-style-type: none"><li>• Successful completion of the <b>Grade D4</b> operator examination within the three years prior to submitting the application for certification, <b>AND:</b><ol style="list-style-type: none"><li>1. At least <b>one year</b> of operator experience working as a certified D3 operator for a D3 system or higher (no substitutions) <b>AND;</b></li><li>2. At least <b>three additional years</b> of operator experience working as a distribution operator, (may be partially substituted with (1) below)</li></ol></li></ul>
<ul style="list-style-type: none"><li>• Successful completion of the <b>Grade D5</b> operator examination within the three years prior to submitting the application for certification, <b>AND:</b><ol style="list-style-type: none"><li>1. At least <b>two years</b> of operator experience working as a certified D4 operator for a D4 or D5 system (no substitutions) <b>AND;</b></li><li>2. At least <b>three additional years</b> of operator experience working as a distribution operator, (may be partially substituted with (1) below)</li></ol></li></ul>

## Experience Substitutions for Certification, as referenced above:

1. A degree earned at an accredited academic institution may be substituted as follows:
  - **Associate Degree or Certificate** in water or wastewater technology or distribution that includes at least 15 units of physical, chemical, or biological science may be used to fulfill **1 year** of operator experience.
  - **Bachelor Degree** in engineering or in physical, chemical, or biological science may be used to fulfill **1.5 years** of operator experience.
  - **Masters Degree** in engineering or in physical, chemical, or biological science may be used to fulfill **2 years** of operator experience.
2. A certified operator may substitute on a day-for-day basis, one additional year of operator experience working as a distribution operator with experience gained while working with lead responsibility for water quality or quantity related projects or research.

# Renewals & CEU's (Continuing Education Units)

## Certificate Renewal and Continuing Education Requirements

Once you become a certified operator you will be required to pay a renewal fee and complete continuing education contact hours every three years. All certified operators must complete the continuing education contact hours within their renewal period in order to renew their certification. Certificate renewal is due 120 days (four months) prior to the certificate expiration date, therefore, it is necessary to complete the continuing education contact hours at least four months prior to the expiration of the certificate in order to avoid late fees.

Continuing education that was obtained **prior** to the issue of the certificate being renewed does not count toward renewal of the current certificate. The number of required contact hours is based upon the grade of certificate held. Continuing education contact hours for certificate renewals are as follows:

**D1 = 12 Contact Hours**

**D2 = 16 Contact Hours**

**D3 = 24 Contact Hours**

**D4 = 36 Contact Hours**

**D5 = 36 Contact Hours**

Operators possessing both water distribution and water treatment certificates may apply continuing education credits to both certificates providing credits are earned within both renewal periods.

### How will I know whether or not the training I take will be acceptable as continuing education?

The regulation requires that the course, class or seminar present "information related to the operation of a treatment facility and/or distribution system." Continuing education hours can also be earned by attending industry meetings and conferences, in-house training, and by taking college courses, correspondence courses, internet classes, etc.

**The course, class, seminar or presentation must be at least one hour long and cannot be added together to equal one hour of contact time.**

A list of continuing education providers is available if you are unsure of where to get your contact hours. The list is not comprehensive, but representative of providers that have been reviewed. **Please contact the education provider directly for information about class time, cost, location and contact hours awarded.** See the list of continuing education providers below or visit our website for updated information on providers.

## Continuing Education Providers

Online Courses		
Training Provider	Contact Information	Contact Hours Offered
360Water.com	(866) 259-7480 <a href="http://www.360water.com">www.360water.com</a>	1—10
AWWA	American Water Works Association Online Institute (800) 926-7337 <a href="http://www.awwa.org/learnonline">www.awwa.org/learnonline</a>	Varies
CEUPlan	<a href="http://www.ceuplan.com">www.ceuplan.com</a>	1—4
RedVector.com	(866) 546-1212 <a href="http://www.redvector.com">www.redvector.com</a>	1—6
TargetSafety	(877) 944-6372 <a href="http://www.targetsafety.com">www.targetsafety.com</a>	1

# Renewals & CEU's (Continuing Education Units) (Continued)

Computer-based Training		
Training Provider	Contact Information	Contact Hours Offered
David H. Paul Training	David H. Paul Training P.O. Box 2590 Farmington, NM 87499 (877) 711-4347 <a href="http://www.dhptraining.com">www.dhptraining.com</a>	Varies
Micar, Inc.	Micar, Inc. P.O. Box 5897 Aloha, OR 97006-5897 (800) 318-4739 <a href="http://www.h2o-ed.com">www.h2o-ed.com</a>	6
Montana Water Center and the National Drinking Water Clearinghouse	<a href="http://water.montana.edu/training/gwb/orderCD.htm">http://water.montana.edu/training/gwb/orderCD.htm</a>  Order from: <a href="http://www.nesc.wvu.edu/ndwc/ndwc_resources.htm">www.nesc.wvu.edu/ndwc/ndwc_resources.htm</a> "Operator Basics Training" Series, Click on ndwc_orders@mail.nesc.wvu.edu to order product #DWCDTR18 thru e-mail or call (800) 624-8301 and ask for item #DWCDTR18	Varies Print out and return the computer log of hours for CE Credit
Technical Learning College	Technical Learning College P.O. Box 420 Payson, AZ 85547-0420 (928) 468-0665 info@tlch2o.com <a href="http://www.tlch2o.com">www.tlch2o.com</a>	10—30

Seminars/Presentations		
Training Provider	Contact Information	Contact Hours Offered
CA-NV-AWWA	The California-Nevada Section of the American Water Works Association (909) 481-4688 <a href="http://www.ca-nv-awwa.org">www.ca-nv-awwa.org</a>	Varies
CRWA	California Rural Water Association (916) 553-4900 <a href="http://www.calruralwater.org">www.calruralwater.org</a>	Varies
RCAC	California Community Assistance Corporation (916) 447-9832 x 121 <a href="http://www.rcac.org">www.rcac.org</a>	Varies
Harry Brown Training (CSUS Approved Instructor)	Harry Brown Training P.O. Box 4959 San Luis Obispo, CA 93403 hbrown5477@aol.com (805) 545-7971	21—40

# Renewals & CEU's (Continuing Education Units) (Continued)

Seminars/Presentations		
Training Provider	Contact Information	Contact Hours Offered
OCT, Inc.	Provides various training courses throughout the state of California (888) 248-2552 <a href="http://www.octinc.com">www.octinc.com</a>	Varies
Golden State Water Company	Golden State Water Company 630 E. Foothill Boulevard San Dimas, CA 91773 (888) 933-8648 <a href="http://www.eduniv.com">www.eduniv.com</a>	Varies



**Important:**  
Continuing Education Hours are due by the expiration date of your certificate

Correspondence Course /Video / Online Courses		
Training Provider	Contact Information	Contact Hours Offered
CSUS	CSUS—California State University, Sacramento Office of Water Programs (916) 278-6142 <a href="http://www.owp.csus.edu">www.owp.csus.edu</a>	15—90

# Renewal Fees & CEU Information

## Does safety training count towards the continuing education requirement?

Operators may fulfill up to 25% of the required contact hours with safety training. Examples of acceptable safety topics are: confined spaces, slip and fall prevention, chemical safety, electrical safety, etc.

## How do I prove that I've completed the required number of continuing education contact hours?

You should keep a copy of the certificate of completion, course syllabus or outline, and maintain a record of the instructor's name, the location of the course, the number of contact hours, and the date it was completed. If the instructor does not provide a certificate of completion or course syllabus or outline, you should keep notes on what the instructor covered during the course. With your renewal application, you will be required to submit the name of the instructor, the location of the course, the number of contact hours, the date class was obtained, and the telephone number of the instructor.

## What happens if I don't complete the continuing education hours?

A certificate will not be renewed if the continuing education requirements are not met. The certificate may be reinstated within six months of the expiration date if all continuing education requirements are met, if applicable penalties are paid and the renewal application is complete.

If the CE hours are not completed within six months after the expiration date, the certificate will be revoked. Once a certificate is revoked, the only way to become re-certified is to take and pass the exam again.

In accordance with the California Health & Safety Code Section 106885, water treatment and distribution operators cannot work if certification has been suspended or revoked.

Please Note:  
Water treatment and water distribution certificates are considered separate certificate. Fees must be paid for each separate certificate.

## Renewal Fees

In addition to fulfilling the continuing education requirements, you must pay a renewal fee to remain certified. Renewal fees are due every three years, four to six months prior to the expiration date of the certificate.

The current renewal fees are as follows:

	D1	D2	D3	D4	D5
	\$70	\$80	\$120	\$140	\$140

If you are also a state-certified water treatment operator, you qualify for a discount. The dual certificate renewal fees are as follows:

	D1	D2	D3	D4	D5
	\$55	\$60	\$90	\$105	\$105

A penalty fee of \$50.00 will be due for renewals that are submitted after the renewal due date, but at least 45 days prior to the expiration date. A penalty fee of \$100.00 will be due for renewals submitted less than 45 days prior to the expiration date but within one year after the expiration date.

## Why do I have to pay my fees 4 months in advance?

Renewals must be submitted no less than 120 days prior to expiration because of the time necessary to complete the due process associated with revocation as a result of failure to pay renewal fees.

## How will I know when it's time to renew my certificate?

One (1) renewal notice will be sent to the certificate holder two (2) and 1/2 months prior to the due date when its time to renew the certificate. It is the certificate holder's responsibility to keep track of the certificate's renewal date and submit the renewal card, required continuing education hours and the renewal fee during the appropriate time frame. It is also the responsibility of the certificate holder to notify the Operator Certification Program in writing (mailed or faxed) within 60 days of any change in address or name. Please include your operator number(s), signature and date.

# Other Information

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## What happens if I don't pay my certificate renewal fee?

If the certificate renewal is not paid before the date of expiration your certificate will be suspended for **six months**. You have **six months** from the date of suspension to pay your renewal fees. In order to lift the suspension, the renewal fee and the \$100.00 penalty must be submitted.

Once the **six month** grace period for your renewal payment to be received by this office has passed, your certificate is revoked. Once a certificate is revoked, the only way to become re-certified is to take and pass the exam again.

Remember, water treatment and water distribution operators cannot work if their certification has been suspended or revoked.

## If I lose my original certificate can I get a new one?

Yes. You must send a written request that includes your operator number, grade, name, address, reason for request, and a \$25 check or money order made out to the CDPH-OCP. Send the request and fee to:

**California Department of Public Health  
Operator Certification Program, MS#7417  
P.O. Box 997377  
Sacramento, CA 95899-7377**

## I lost my operator wallet ID card. Can I get another one?

Yes, just give us a call at (916) 449-5611 and we will mail you another wallet ID card with your operator number and expiration date at no cost.

## What if I have a new mailing address or have recently moved?

We need to receive your new or corrected address information from you in writing. You can either fax or mail the request to us. You must include your name, operator number, old address, new address, and your signature. You will receive confirmation through the mail that we have received and updated your information. You do not need a special form.

## E-mail Contacts

Questions about the examination & certification?	.....	Karen Hinrichs at Karen.Hinrichs@cdph.ca.gov
Questions about continuing education renewals?	.....	Steve Bogart at Steve.Bogart@cdph.ca.gov
Questions about certificate renewal fees?	.....	Amy Chiang at Amy.Chiang@cdph.ca.gov