



## Regulations Basics: Operator Certification



### WELCOME!

This training is presented by RCAC with funding provided by the California State Revolving Fund (SRFCA) from the California State Water Resources Control Board, Division of Drinking Water (DDW)





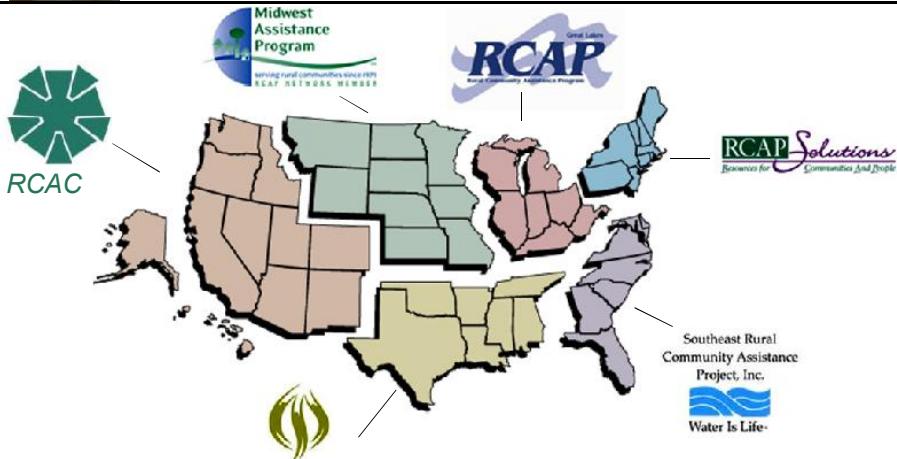
## Your Moderator Today...



***Kevin Baughman***  
*Reno NV*  
***kbaughman@rcac.org***



## The Rural Community Assistance Partnership





## RCAC Programs

- ◆ Affordable housing
- ◆ Community facilities
- ◆ Water and wastewater infrastructure financing (Loan Fund)
- ◆ Classroom and online training
- ◆ On-site technical assistance
- ◆ Median Household Income (MHI) surveys



## Performance Assessment Rating Tool (PART)



- 4 to 6 weeks from today
- Email w/ today's workshop in subject line
- 3 questions – 3 minutes maximum
- How did you use the information that was presented today?
- Funders are looking for positive changes
- Help us continue these free workshops!

# Questions?

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**Text your questions and comments  
anytime during the session**



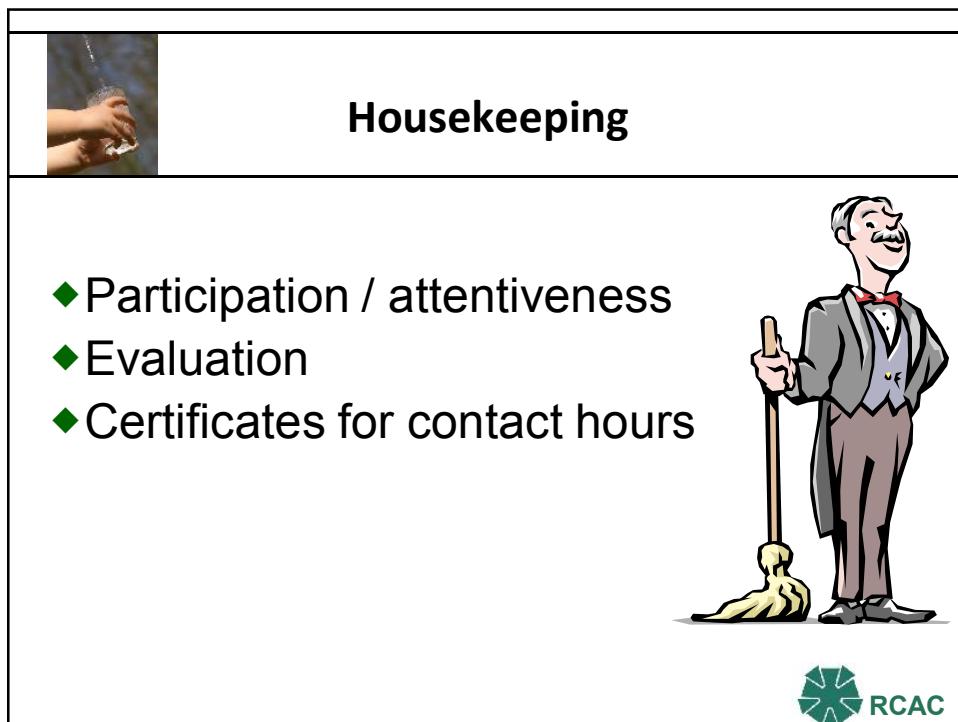
## Your Presenter Today...

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Neil Worthen  
Las Cruces, NM  
[nworthen@rcac.org](mailto:nworthen@rcac.org)





**Housekeeping**

- ◆ Participation / attentiveness
- ◆ Evaluation
- ◆ Certificates for contact hours



RCAC



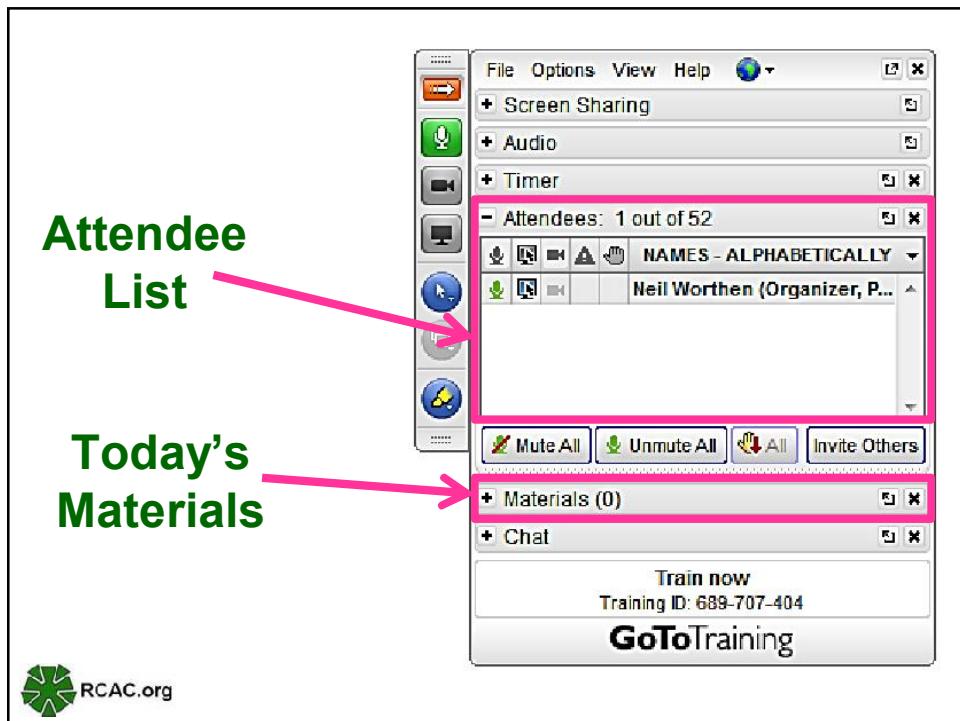
**Control Tabs**

The Control Tabs interface is shown with a pink box highlighting the following tabs:

- Screen Sharing
- Audio
- Timer
- Attendees: 1 out of 52
- Materials (0)

Below these tabs is a Chat window with a message input field and a dropdown for audience selection. At the bottom, there is a "Train now" button, a Training ID: 689-707-404, and the GoToTraining logo.

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# Questions?



**Text your questions and comments  
anytime during the session**



## Regulations Basics: Operator Certification



## Today's Agenda

- ◆ Importance of Operator Certification
- ◆ Requirements of Operator Certification
  - ▶ Operator certification testing requirement
  - ▶ Operator certification renewal
  - ▶ Water system classification
- ◆ Additional Resources



## The Walkerton Incident

- ◆ Operated by Stan Koebel (GM) and his brother Frank (foreman)
- ◆ Grandfathered operators, no training





## The Contamination Spring 2000

- ◆ Farmer spreads manure on his property for crops
- ◆ Heavy rains totaling 5.25 inches
- ◆ Well was contaminated, operators did not have training to deal with it



## Results of this contamination

- ◆ 7 people die
- ◆ 2300 people become ill
- ◆ Many have permanent organ damage
- ◆ Could have been prevented = trained operators!



**Poll Time!**

Question 1: What is your level of certification?



## California Water Systems

Type of System	Approximate #
COMMUNITY	<b>3,000</b>
Large (>3,000 people)	700
Small (>15 connection, <3,000 people)	2,300
NON-COMMUNITY	<b>4,500</b>
Nontransient	1,500
Transient	3,000
<b>Total</b>	<b>7,500</b>

Population Served	Population / %
LWS (9.3% of PWS)	37 m / 99%
SWS (90.7% of PWS)	400,000 / 1%



## California Certification By the Numbers

- ◆ 34,495 water operator certificates
- ◆ 14,085 water treatment certificates
- ◆ 20,410 water distribution certificates
- ◆ 21,953 individual water operators
- ◆ 1/3 of operators hold both treatment and distribution certification



## Regulations

- ◆ Congress approved the Federal Safe Drinking Water Act (SDWA) in 1974, implemented 1977
- ◆ All states *with primacy* implemented water treatment operator program
- ◆ The 1996 amendments to the Federal SDWA require distribution certification
- ◆ California adopted distribution regulations effective 1/1/01





## Who Is Required To Have A Certified Water Operator?

- ◆ A public water system serves the same 15 service connections OR same 25 people at least 60 days per year
- ◆ Community Water System – at least 15 connections or 25 people year round
- ◆ Nontransient Noncommunity Water System – Same 25 people over 6 months per year
- ◆ Transient Noncommunity Water System – NA



**Poll Time!**

Question 2: What type of system do you operate?





## State Regulations – Title 22

- ◆ Only **certified** treatment operators shall operate a treatment plant when:
- ◆ Chemicals are used to meet primary or secondary standards
- ▶ Filtration is required for water quality to meet California or federal SDWA
  - ▶ Multi media or slow sand
  - ▶ Membrane etc



## State Regulations – Title 22

- ◆ Distribution certification:
  - ▶ Disinfects water as precaution only
  - ▶ Ground water systems not needing any treatment
  - ▶ Systems that deliver water to consumers after treatment
  - ▶ Community & Nontransient water systems





## Purpose of Operator Certification

- ◆ Operator certification ensures the delivery of safe drinking water
- ◆ Operator certification sets standards for education, training, and experience
- ◆ Standards are set by a stakeholders committee in California



## Requirements Operator Certification

- ◆ **Every public water system is required to have a certified operator**
- ◆ Requirements for obtaining certification
- ◆ Requirements for maintaining certification
- ◆ Water system classification





## Requirements Operator Certification

- ◆ **Every public water system is required to have a certified operator**
  - ▶ Treatment operators
  - ▶ Distribution operators



## Definitions

- ◆ Chief Operator – Operator designated who has overall responsibility for the day-to-day, hands-on, operation of a water treatment facility or the person who has overall responsibility for the day-to-day, hands-on, operation of a distribution system.





## Definitions

- ◆ Shift Operator -- person in direct charge of the operation of a water treatment facility or distribution system for a specified period of the day



## Definitions

- ◆ Water Treatment Facility – a system that affects the physical, chemical, or bacteriological quality of water distributed.  
*Facilities consisting of only disinfection for which no Giardia or virus reduction is required which are under the control of a certified distribution operator are not included as water treatment facilities.*

*(If you have a water treatment facility, you must have a water treatment certified operator)*





## Definitions

- ◆ **Distribution system** -- means any combination of pipes, tanks, pumps, etc., which delivers drinking water from a source or treatment facility to the consumer and includes: disinfection facilities for which no Giardia or virus reduction is required



## Treatment Certification Requirements

*If you have a treatment facility you must have a treatment certified operator*

### **Minimum Certification Requirements for Chief and Shift Operators**

<i>Treatment Facility Classification</i>	<i>Minimum Certification of Chief Operator</i>	<i>Minimum Certification of Shift Operator</i>
T1	T1	T1
T2	T2	T1
T3	T3	T2
T4	T4	T3
T5	T5	T3

*Operators other than the Chief and Shift Operators can be treatment certified at any grade level*





## Distribution Certification Requirements

*All public water systems must have a distribution certified operator*

### Minimum Certification Requirements for Chief and Shift Operators

<i>Distribution System Classification</i>	<i>Minimum Certification of Chief Operator</i>	<i>Minimum Certification of Shift Operator</i>
D1	D1	D1
D2	D2	D1
D3	D3	D2
D4	D4	D3
D5	D5	D3



## Distribution Certification Requirements

- ◆ Water systems shall utilize only certified distribution operators to make decisions addressing the following operational activities:
  - ▶ Install, tap, re-line, disinfect, test and connect water mains and appurtenances.
  - ▶ Shutdown, repair, disinfect and test broken water mains.
  - ▶ Oversee the flushing, cleaning, and pigging of existing water mains.
  - ▶ Pull, reset, rehabilitate, disinfect and test domestic water wells.
  - ▶ Stand-by emergency response duties for after hours distribution system operational emergencies.
  - ▶ Drain, clean, disinfect, and maintain distribution reservoirs.





## Distribution Certification Requirements

- ◆ Water systems shall utilize either certified distribution operators or treatment operators that have been trained to make decisions addressing the following operational activities:
  - ▶ Operate pumps and related flow and pressure control and storage facilities manually or by using a system control and data acquisition (SCADA) system.
  - ▶ Maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements.



### QUIZ Time!

Question 3: What skills should an operator have?





## Questions?



***Text your questions and comments  
anytime during the session***



## Requirements Operator Certification

- ◆ Every public water system is required to have a certified operator
- ◆ **Requirements for obtaining certification**
- ◆ Requirements for maintaining certification
- ◆ Water system classification





## Obtaining Certification – General Requirements

- ◆ Education
  - ▶ High School, GED or *equivalent*
  - ▶ Specialized training
- ◆ Experience (Grades 3, 4 and 5)
- ◆ Exam
- ◆ Fee (\$\$\$) to SWRCB for cert



## To Take Treatment Exam...

Grade	Minimum Qualifications for Examination
T1	<ul style="list-style-type: none"><li>▪ High School or GED*</li></ul>
T2	<ul style="list-style-type: none"><li>▪ High School or GED*</li><li>▪ <u>AND</u></li><li>▪ <u>One 3-unit (or One 36-hour) course of specialized training covering the fundamentals of drinking water treatment</u></li></ul>
T3	<ul style="list-style-type: none"><li>▪ High School or GED</li><li>▪ <u>AND</u></li><li>▪ <u>Two 3-unit (or two 36-hour) courses of specialized training that includes one course covering the fundamentals of drinking water treatment</u></li></ul>
T4	<ul style="list-style-type: none"><li>▪ Possession of a valid T3 certificate</li><li>▪ <u>AND</u></li><li>▪ <u>Three 3-unit (or three 36-hour) courses of specialized training that includes at least 2 courses in drinking water treatment</u></li></ul>
T5	<ul style="list-style-type: none"><li>▪ Possession of a valid T4 certificate</li><li>▪ <u>AND</u></li><li>▪ <u>Four 3-unit (or four 36-hour) courses of specialized training that includes at least 2 courses in drinking water treatment</u></li></ul>

## To Get Treatment Cert...

### Minimum Qualifications for Certification

- Successful completion of the T1 exam
- Successful completion of the T2 exam
- Successful completion of the T3 exam  
▪ 1 year of operator experience working as a certified T2 operator for a T2 facility or higher (may be substituted for (3) below) AND  
▪ 1 additional year of operator experience working as a certified treatment operator (may be substituted with (1), (2), or (4) below)
- Successful completion of the T4 exam  
▪ 1 year of operator experience working as a shift or chief operator, while holding a valid T3 operator certificate, at a T3 facility or higher (may be substituted with (3) below) AND  
▪ 3 additional years of operator experience working as a certified treatment operator (may be substituted with (1) or (4) below)
- Successful completion of the T5 exam  
▪ 2 years of operator experience working as a shift or chief operator, while holding a valid T4 operator certificate, at a T4 facility or higher (no substitutions) AND  
▪ 3 additional years of operator experience working as a certified treatment operator (may be substituted with (1) or (4) below)



## Substitutions For Experience

- ◆ Associates Degree
- ◆ Bachelors Degree
- ◆ Masters Degree, Etc.
  
- ◆ Have your argument prepared, contact DDW to make sure education counts!

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

## Distribution

Minimum Qualifications for Certification
<ul style="list-style-type: none"> <li>Successful completion of the Grade D1 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 Grade D2 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 Grade D3 operator examination within the three years prior to submitting the application for certification <b>AND</b>:</li> <li><u>One year of operator experience working as a certified D2 operator, interim D3 or higher operator, or temporary D3 operator for a D2 system or higher, or a system that prior to January 1, 2001 would have met the criteria for classification as a D2 system or higher</u> <b>AND</b>; <u>At least one additional years of operator experience working as a distribution operator.</u></li> </ul>
<ul style="list-style-type: none"> <li>Successful completion of the Grade D4 operator examination within the three years prior to submitting the application for certification <b>AND</b>:</li> <li><u>At least one year of operator experience working as a certified D3, interim D4 or higher operator, or temporary D4 operator for a D3 system or higher, or a system that, prior to January 1, 2001 would have met the criteria for classification as a D3 facility or higher</u> <b>AND</b>; <u>At least three additional years of operator experience working as a water distribution operator.</u></li> </ul>
<ul style="list-style-type: none"> <li>Successful completion of the Grade D5 operator examination within the three years prior to submitting the application for certification <b>AND</b>:</li> <li><u>At least two years of operator experience working as a certified D4, interim D5 operator, or temporary D5 operator for a D4 or D5 system, or a system that prior to January 1, 2001 would have met the criteria for classification as a D4 or D5 system</u> <b>AND</b>; <u>At least three additional years of operator experience working as a distribution operator.</u></li> </ul>



## Substitutions For Experience

- ◆ Associates Degree
- ◆ Bachelors Degree
- ◆ Masters Degree, Etc.
- ◆ Have your argument prepared, contact DDW to make sure education counts!



## Don't Forget the EXAM!





State Water Resources Control Board

## Drinking Water Treatment Exams Expected Range of Knowledge

Exam Content Grade	Number of questions			
	T1	T2	T3	T4
<b>Source Water</b>	<b>25</b>	<b>25</b>	<b>20</b>	<b>15</b>
<b>Water Treatment Processes</b>	<b>25</b>	<b>25</b>	<b>35</b>	<b>20</b>
<b>Operation/Maintenance</b>	<b>20</b>	<b>20</b>	<b>15</b>	<b>15</b>
<b>Laboratory Procedures</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>
<b>Regulations/Administrative Duties</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>35</b>



### Source Water

Watershed Protection, Wells / Groundwater, Surface Water / Reservoirs, Raw Water Storage, Clear Well Storage

### Water Treatment Processes

Coagulation/Flocculation/ Sedimentation, Filtration, Disinfection, Demineralization, Corrosion Control, Iron and Manganese removal, Fluoridation, Water Softening, BAT, (Best Available Technology)

### Operation / Maintenance

Chemical feeders, Pumps and Motors, Blowers and Compressors, Water meters, Pressure gauges, Electrical generators, Safety, SCADA systems

### Laboratory Procedures

Sampling, General Lab Practices, Disinfectant analysis, Alkalinity analysis, pH analysis, Turbidity analysis, Specific conductance, Hardness, Fluoride analysis, Color analysis, Taste and Odor analysis, Dissolved Oxygen analysis, Algae Count, Bacteriological analysis

### Regulations/Administrative Duties

Planning, Organizing, Directing, Controlling, Staffing, Implementing Regulations, Record keeping, Safe Drinking Water Act and amendments, Surface Water Treatment Rule and amendments, Primary Contaminants, Secondary Contaminants, Lead and Copper Rule, Fluoride Regulations, Operator Certification Regulations

## EXPECTED RANGE OF KNOWLEDGE WATER TREATMENT EXAMS

(Items marked "T1-T4" may be on the T1 – T4 exams)  
(Items marked "T2-T4" may be on the T2 – T4 exams but not on the T1 exam)

### Source Water

#### Wells/Groundwater

- T1-T4 Knowledge of the characteristics of aquifers
- T1-T4 Knowledge of the chemical components of groundwater
- T1-T4 Knowledge of potential contamination in groundwater
- T1-T4 Knowledge of well sampling techniques
- T1-T4 Knowledge of groundwater characteristics
- T1-T4 Ability to analyze water quality characteristics
- T1-T4 Ability to calculate well drawdown
- T2-T4 Ability to recognize hydrological changes
- T2-T4 Ability to calculate a disinfectant dosage in a well
- T2-T4 Ability to recognize the influence of surface water on a groundwater source
- T2-T4 Ability to calculate well specific capacity
- T3-T4 Knowledge of the source water assessment process
- T3-T4 Ability to recognize abnormal chemical characteristics of water
- T3-T4 Ability to calculate well head pressure

#### Surface Water/Reservoirs

- T1-T4 Knowledge of microbial contamination
- T1-T4 Knowledge of flow measurement devices
- T1-T4 Ability to recognize potential sources of contamination in surface water
- T1-T4 Ability to calculate flow rates



### Water Treatment Exam Math

- T1-T4 Ability to calculate well drawdown
- T1-T4 Ability to calculate flow rates, water velocity
- T1-T4 Ability to calculate the volume of water contained in a storage facility
- T1-T4 Ability to calculate a chemical, disinfectant dosage
- T1-T4 Ability to determine water level
- T1-T4 Ability to calculate volumes, dilution factors, feed rates, and chemical concentrations
- T1-T4 Ability to calculate a de-chlorination dosage
- T1-T4 Ability to calculate chlorine residual
- T1-T4 Ability to convert a head pressure to water elevation
  
- T2-T4 Ability to calculate well specific capacity
- T2-T4 Ability to calculate detention time
- T2-T4 Ability to calculate chemical solution concentration
- T2-T4 Ability to calculate filter-aid dosage
- T2-T4 Ability to calculate filter backwash rate
- T2-T4 Ability to calculate an ammonia/chlorine ratio
- T2-T4 Ability to calculate a chemical feed rate (dose) for corrosion control
- T2-T4 Ability to calculate a chemical dosage for Fe/Mn removal, fluoridation
- T2-T4 Ability to calculate a dosage on a chemical feeder
  
- T3-T4 Ability to calculate well head pressure
- T3-T4 Ability to calculate a coagulant dosage
- T3-T4 Ability to perform a jar test
- T3-T4 Ability to calculate filter media volume and capacity
- T3-T4 Ability to calculate a filtration rate



**WATER TREATMENT  
OPERATOR CERTIFICATION PROGRAM**

<u>Final Filing Date</u>	<u>T1 - T4 Test Dates</u>	<u>T5 Test Dates</u>
September 1, 2015	November 21, 2015	December 2015*
March 1, 2016	May 21, 2016	June 2016*
September 1, 2016	November 19, 2016	December 2016*
March 1, 2017	May 20, 2017	June 2017*
September 1, 2017	November 18, 2017	December 2017*

*Exam dates are subject to State Water Board approval.*

Applications must be **POSTMARKED ON OR BEFORE** the final filing date to be considered for the current examination period. All minimum education qualifications must be met by the final filing date of the exam in which you wish to participate. Incomplete or illegible applications will result in a delay in the evaluation of your qualifications and scheduling of examination.



## Treatment Testing Locations

\* Grade 5 oral exams will be held in two locations ONLY – Northern California and Southern California (usually Sacramento and Lakewood)

PROPOSED EXAM SITES (Grade T1 – T4)

Central Coast	Redding	San Diego
Fresno	Sacramento	San Jose
Los Angeles	San Bernardino	Vallejo/Concord

Exam sites are in the general vicinity of the cities listed above and are subject to change.



## **Water Distribution Exam**

### **Expected Range of Knowledge**

+

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

### ***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

**WATER DISTRIBUTION  
OPERATOR CERTIFICATION PROGRAM**

**Final Filing Date**

January 4, 2016

July 1, 2016

January 2, 2017

July 3, 2017

**Test Dates**

March 19, 2016

September 17, 2016

March 18, 2017

September 16, 2017

*Exam dates are subject to Department approval.*



**Distribution Testing  
Locations**

**PROPOSED EXAM SITES (Grade D1 – D5)**

Central Coast  
Fresno  
Los Angeles

Redding  
Sacramento  
San Bernardino

San Diego  
San Jose  
Vallejo/Concord

Exit sites are in the general vicinity of the cities listed and are subject to change.





## Books for Treatment Exam Prep

- ◆ Water Treatment Plant Operations, Volume 1 (CSUS 916-278-6142)
- ◆ Water Treatment Plant Operations, Volume 2 (CSUS 916-278-6142)
- ◆ Water Treatment Operator Training Handbook (AWWA 800-926-7337)



## Books for Distribution Exam Prep

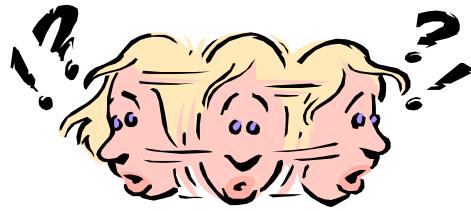
- ◆ Water Distribution System Operation and Maintenance (CSUS 916-278-6142)
- ◆ Small Water System Operation and Maintenance (CSUS 916-278-6142)
- ◆ Water Distribution Operator Training Handbook (AWWA 800-926-7337)





## Information Overload!

- ◆ **Expected range of knowledge!!!**
- ◆ Water language
- ◆ Safety
- ◆ Disinfection
- ◆ Water math
- ◆ Attend exam prep workshop



## The Tests!

- ◆ 85 multiple choice questions
- ◆ 15 multiple choice math problems
- ◆ Conversion sheet provided
- ◆ Questions can be confusing
- ◆ Must be completed within 3 hours

## **Test Day**

- ◆ The day before...
- ◆ Arrive early the day of the test
- ◆ Bring ID, admittance card, calculator and #2 pencils ONLY
- ◆ Follow proctors directions

## **Test Day**

- ◆ Scan the test briefly
- ◆ Read first 6 questions without answering
- ◆ Eliminate answers that are wrong
- ◆ Pick best response of the remaining answers



## Test day

- ◆ Understand exactly what the question is asking
- ◆ Do not leave unanswered questions  
**No answer = wrong answer**
- ◆ Mark guesses & come back to them



## Test day

- ◆ Math problems
  - ▶ Show your work (write it down!)
  - ▶ Enter into calculator, write down answer, clear, repeat
  - ▶ Calculator requirements
- ◆ Pace yourself
- ◆ Do not cheat!





## Requirements Operator Certification

- ◆ Every public water system is required to have a certified operator
- ◆ Requirements for obtaining certification
- ◆ **Requirements for maintaining certification**
- ◆ Water system classification



## Maintaining Certification

- ◆ Certification renewal every 3 years
- ◆ Continuing education required for renewal
  - ▶ Necessary to upgrade/maintain skills
- ◆ Fee (\$\$\$) required for renewal
- ◆ Non-renewal requires retest





## Required Continuing Education

### Required Continuing Education Contact Hours for Certificate Renewal

<i>Water Treatment Operators</i>	<i>Contact Hours Required</i>
Grade T1	12
Grade T2	16
Grade T3	24
Grade T4	36
Grade T5	36

<i>Distribution Operators</i>	
Grade D1	12
Grade D2	16
Grade D3	24
Grade D4	36
Grade D5	36



## And Don't Forget the Fees

### Operator Fee Schedule

<i>Grade</i>	<i>Examination Fee (\$)</i>	<i>Reexamination Fee (\$)</i>	<i>Certification Fee (\$)</i>	<i>Triennial Renewal Fee (\$)</i>
D1 or T1	50	30	70	70
D2 or T2	65	45	80	80
D3 or T3	100	70	120	120
D4 or T4	130	95	140	140
D5 or T5	155	120	140	140





## Tips for Maintaining Certification

- ◆ Notify DDW within 60 days of any change of address
- ◆ Keep records of continuing education, including:
  - ▶ Title,
  - ▶ name of the instructor,
  - ▶ location,
  - ▶ date(s), and
  - ▶ number of contact hours



### QUIZ Time!

Question 5: Which of the following is not true?





# Questions?



***Text your questions and comments  
anytime during the session***



## Requirements Operator Certification

- ◆ Every public water system is required to have a certified operator
- ◆ Requirements for obtaining certification
- ◆ Requirements for maintaining certification
- ◆ **Water system classification**





## Water System Classification

- ◆ Every water system is classified to determine required operator certification grade

### *Water System Classification*

1      2      3      4      5



*Smallest, least complex*

*Largest, most complex*



## Water System Classification

- ◆ Every water system is classified for:
  - ▶ Distribution system
  - ▶ Treatment facility (N/A for systems that don't treat their water)
- ◆ DDW has classified all water systems in CA





## Distribution Classification

- ◆ Based on population served with upgrade of classification for more complex systems (multiple pressure zones, tanks, disinfectants used, PRVs...)

### Distribution System Classifications

<i>Population Served</i>	<i>Class</i>
1,000 or less	D1
1,001 through 10,000	D2
10,001 through 50,000	D3
50,001 through 5 million	D4
Greater than 5 million	D5



## Treatment System Classification

- ◆ Treatment System Classification is based on:
  - ▶ Raw water quality
  - ▶ Treatment technology used
  - ▶ Disinfectant used
  - ▶ Plant flow (capacity)



**Poll Time!**

Question 6: At what level is your water system classified?

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## Resources

- ◆ California Drinking Water Regulations  
[http://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/lawbook/dwregulations-2014-07-01.pdf](http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwregulations-2014-07-01.pdf)
- ◆ Water Board web site  
[http://www.waterboards.ca.gov/drinking\\_water/programs/index.shtml](http://www.waterboards.ca.gov/drinking_water/programs/index.shtml)

 RCAC



TEST  
YOURSELF!

### Test your OpCert knowledge

Test 1: Example of test questions on the state exam.



### Session Evaluation

- ◆ Go to file, click on “close or leave session”
- ◆ Evaluation automatically pops up
- ◆ If it does not, one will be e-mailed to you within 24 hours
- ◆ We need these for your contact hours!





**To contact the trainers...**

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**5 minute  
break**

