JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
SAFE DRINKING WATER BRANCH
ULUAKUPU BUILDING 4
2385 WAIMANO HOME ROAD, SUITE 110
PEARL CITY, HI 96782-1400

In reply, please refer to:
File: SDWB

Minutes 5-27-2026

BOARD OF CERTIFICATION OF PUBLIC WATER SYSTEM OPERATORS
MINUTES OF THE MEETING

DATE: May 27, 2026

TIME: 10:00 a.m.

MEMBERS PRESENT: James Landgraf (2nd term expires 6/30/29)
Ian Ichimura (1st term expires 6/30/28)
Zhaohui Wang (1st term expires 6/30/28)

A. Call to Order

- The meeting began at 10:00 a.m.

B. Old Business

- The Board unanimously approved the February 25, 2026 meeting minutes.

C. New Business

- Distribution System Operator (DSO) Certification Applications

  The Board unanimously approved the following applications for certification:

	Name	Grade Requested	Grade Approved
1	Baguso, Ferdinand	1	1
2	Makinano, Michael	1	1
3	Narito, Vicente	1	1
4	Botelho, Raymond	2	2
5	Fauatea, Ryan	2	2
6	Martinez, Chad	2	2
7	Trissel, James	3 Reciprocity	3 Reciprocity

8	Crocker, Christopher	4 Reciprocity	4 Reciprocity

For detailed information, please refer to Attachment 1.

- Water Treatment Plant Operator (WTPO) Certification Applications

  The Board unanimously approved the following applications for certification:

	Name	Grade Requested	Grade Approved
1	Beard, Jeff	1	1
2	Burdett, Brydon	1	1
3	O'Neil, William	1	1
4	Medeiros, Jason	2	2
5	Trissel, James	2 Reciprocity	1 Reciprocity

For detailed information, please refer to Attachment 2.

- Continuing Education Unit (CEU) Requests

  The Board unanimously approved the following CEU requests:

	Course	Date	Sponsor	CEUs Approved
1	Emergency Deployment of Water Treatment Systems During Disaster	3/11/26	United States (US) Environmental Protection Agency (EPA)	None
2	Addressing Cybersecurity in Risk and Resilience Assessments and Emergency Response Plans	4/23/26	US EPA	0.1
3	Building Cyber Resilience Using EPA's Water and Wastewater Cybersecurity Incident Response Plan Template	4/30/26	US EPA	0.15
4	Small Systems Big Performance: How to Select the Right Per- and	4/30/26	National Rural Water	0.1

	Polyfluoroalkyl Substances (PFAS) Removal Technology for Your Rural System		Association (NRWA)	
5	Water Storage Asset Management: Using Protective Coatings to Create an Unlimited Life Cycle	5/7/26	NRWA	0.1
6	Modernizing Water Assets with Polysiloxanes	5/14/26	American Water Works Association (AWWA)	0.1
7	Cybersecurity in the Water Sector	5/20/26	AWWA Hi	0.45
8	Addressing Power Outages in Risk and Resilience Assessments and Emergency Response Plans	5/27/26	US EPA	0.1
9	Advancing PFAS Removal from Pilot to Plant	9/3/26	AWWA	0.1
10	Cybersecurity Procurement Checklist Tool Training	Various	US EPA	0.15
11	Water Cybersecurity Assessment Tool Training	Various	US EPA	0.15
12	Water Treatment Plant Operator 1 & 2 Certification Review	Various	Rural Community Assistance Corporation (RCAC)	1.2
13	What Are Pressure Reducing Valves (PRV)s	Various	RCAC	0.65
14	2026 Board of Water Supply Sanitary Survey Training	Various	Carollo	0.2
15	Fundamentals of Microbiology	Various	University of Hawaii (UH) Hilo	3.0
16	Additional Treatments in Drinking Water	Various	Watura	0.15
17	Chemical Reactions in Water Treatment	Various	Watura	0.1
18	Components of a Motor Control Center	Various	Watura	0.15
19	Cybersecurity	Various	Watura	0.2

20	Disinfection in Drinking Water Distribution Systems	Various	Watura	0.1
21	Disinfection in Drinking Water Treatment	Various	Watura	0.2
22	Drinking Water and Wastewater Systems Mapping	Various	Watura	0.15
23	Electricity in Drinking Water and Wastewater Systems	Various	Watura	0.1
24	Groundwater Withdrawal	Various	Watura	0.1
25	Laboratory Equipment and Procedures	Various	Watura	0.15
26	Math Grade I – Part I	Various	Watura	0.15
27	Math Grade I – Part II	Various	Watura	0.2
28	Stages of Drinking Water Treatment	Various	Watura	0.1
29	Surface Water Sources	Various	Watura	0.1
30	Water Storage	Various	Watura	0.1
31	Emergency Response Planning	Various	RCAC	0.2
32	2025 Alberta Water & Wastewater Operators Association (AWWOA) Annual Operators Seminar	3/10-14/25	AWWOA	1.2
33	Annual Conference & Expo (ACE) 2025	6/9-12/25	AWWA	1.05
34	Tri-State Seminar 2025	8/4-7/25	California Water Environment Association (CWEA), Nevada Water Environment Association (NWEA), Arizona Water Association (AZWA)	0.7
35	Rocky Mountain Water Conference 2025	8/24-27/25	AWWA Rocky	0.15

			Mountain	
36	2026 AWWOA Annual Operators Seminar	3/9-13/26	AWWOA	1.2
37	2026 Michigan Rural Water Association (MRWA) Annual Conference	3/17-20/26	MRWA	1.1
38	2026 American Backflow Prevention Association (ABPA) International Conference & Trade Show	5/4-6/26	ABPA	0.9

For detailed information, please refer to Attachment 3.

- DSO Certification Exam Results

  The Board was notified of the following results of the DSO certification exam. Twelve out of 19 operators passed for an overall passing rate of 63%.

	Examinee	Grade	Certification
1	Dumlao-Ranis, Jaeden	1	None
2	Florendo, Tayven	1	None
3	Flores, Javin Ethan	1	None
4	Fung, Kyton	1	None
5	Johnston, Kenneth	1	D1-606
6	Manoske, Robert	1	D1-604
7	Mier, Maile	1	D1-605
8	Tehiva, Lawaia	1	None
9	Ihara-Takase, Colby	2	D2-353
10	Mollena, Joseph	2	D2-355
11	Sanches, Ricky	2	None
12	Sanchez, Brian	2	D2-354
13	Tabangcura, Wilfred	2	D2-356
14	Townsend, Thomas	2	D2-357
15	Malaicki, Braiden	3	D3-179
16	Metcalf, Christopher	3	D3-178
17	Humphrey, Kevin	4	None
18	Inouye, Alvin	4	D4-319
19	Laanui, Lesli	4	D4-320

DSO Exam Results

Grade	Passed	Examinees	Passing Rate
DSO 1	**3**	**8**	**28%**
DSO 2	**5**	**6**	**83%**
DSO 3	**2**	**2**	**100%**
DSO 4	**2**	**3**	**67%**
Total	**12**	**19**	**63%**

- WTPO Certification Exam Results

  The Board was notified of the following results of the WTPO certification exam. Five out of 11 operators passed for an overall passing rate of 45%.

	Examinee	Grade	Certification
1	Castillo, Andrei	1	T1-301
2	Duarte, David	1	T1-300
3	Glaves-Alameda, Ikaika	1	None
4	Mancao-Kanekoa, Kayza	1	None
5	O'Shaughnessy, Riley	1	T1-299
6	Pakani, Matthew	1	None
7	Basilio, Brandon	2	T2-262
8	Kaina, Anthony	2	None
9	Wong, Lucan	2	None
10	Martin, Francis	4	T4-150
11	Paman, Daniel	4	None

WTPO Exam Results

Grade	Passed	Examinees	Passing Rate
WTPO 1	**3**	**6**	**50%**
WTPO 2	**1**	**3**	**33%**
WTPO 3	**--**	**--**	**--**
WTPO 4	**1**	**2**	**50%**
Total	**5**	**11**	**45%**

D. Announcements

- The next board meeting will be scheduled for August 20, 2026.

E. Adjournment

- The meeting was adjourned at 11:00 a.m.

Respectfully Submitted,

Jodi Yamami

Jodi Yamami
FOR Board of Certification of
Public Water System Operators

JY:sw

c: Jeffrey Tsai, U.S. EPA Region IX [via tsai.yun-jui@epa.gov only]
James Landgraf, Board Member [via jlandgraf@hawaiiantel.net only]
Ian Ichimura, Board Member [via ian.ichimura@puralwater.com only]
Zhaohui Wang, Board Member [via zhaohui.wang@doh.hawaii.gov only]
William Whaley, Board Member [via pukaheadplumbing@yahoo.com only]

ATTACHMENT 1
DISTRIBUTION SYSTEM OPERATOR (DSO) DECISIONS
5-27-2026

1 **Baguso, Ferdinand Grade 1** **Approve Grade 1**

345 Schofield
Supervisor Dan Ewen
Plumber/Operator
4 yrs/9 mos

Emergency repairs to water main systems and service lines, Line taps for new service connections, installation maintenance and repair of valves, fire hydrants, testing, maintenance and repair of backflow preventor devices, flow testing, plan/schedule system upgrades, preventative maintenance and component replacement

2 **Makinano, Michael J. Grade 1** **Approve Grade 1**

345 Schofield
Supervisor Dan Ewen
Plumbing Worker
8 yrs

Emergency repairs to water main systems and service lines, Line taps for new service connections, installation maintenance and repair of valves, fire hydrants, testing, maintenance and repair of backflow preventor devices, flow testing, plan/schedule system upgrades, preventative maintenance and component replacement

3 **Narito, Vicente H. Grade 1** **Approve Grade 1**

312 Queens Medical Center
Supervisor Hubert Biete
Utility Plant Supervisor
5 yrs

Supervise technicians performing troubleshooting and repair of water treatment equipment, analyzer calibration (chlorine residual, potential of hydrogen (pH), and flow rate), hydrant service and flow testing, backflow preventer testing and preventative maintenance, manage water system regulatory activities including sampling, sanitary surveys, laboratory result review, prepare and submit regulatory reports including Lead Service Line (LSL) inventory and Consumer Confidence Report (CCR), conduct quality control field surveys, operational Quality Control (QC) reviews and Supervisory Control and Data Acquisition (SCADA) system monitoring

4 **Botelho, Raymond E. Grade 2** **Approve Grade 2**

319 Kamehameha
Supervisor Justin Marshall
Operations Trades Manager
9 yrs

Responsible for the daily operations and management of Public Water System (PWS) 319 including well level monitoring, gallons pumped to storage, maintenance of well and booster pumps, Motor Control Center (MCC) monitoring and maintenance, sodium hypochlorite injection system operation and maintenance, water testing, meeting Environmental Protection Agency (EPA) and Department of Health (DOH) Safe Drinking Water Branch (SDWB) requirements, and budgetary planning for annual maintenance of system

5 **Fauatea, Ryan T. Grade 2** **Approve Grade 2**

237 Lanai City
Supervisor Aaron Bruce
DSO
2 yrs/5 mos

Test chlorine residual, operate and maintain system valves, fire hydrants, water storage, piping, read and maintain system water meters, respond after hours on emergencies

- DSO 1 certified

ATTACHMENT 1
DISTRIBUTION SYSTEM OPERATOR (DSO) DECISIONS
5-27-2026

6 **Martinez, Chad P. Grade 2** **Approve Grade 2**

319 Kamehameha
Supervisor Ray Botelho
Journeyman Plumber
15 yrs

Check and oversee operations of two deep wells and three reservoirs twice a day, mix hypochlorite in holding tanks that are injected into raw water from deep well into reservoir, test chlorine levels and record and monitor, troubleshoot system if numbers are not within range, basic maintenance of well pumps and chlorine injection pumps, collect water samples twice a month

7 **Trissel, James D. Grade 3 Reciprocity** **Approve Grade 3 Reciprocity**

City of Homer
Supervisor Todd Cook
Utility Operator
4 yrs

Maintenance on service connections, exercise main line valves, repair and maintain hydrants, operate and maintain pressure reducing stations, perform directional flushing, hydrant testing and flow checks

- Alaska Water Distribution 3 #24632 expires 12/31/2027
- Alaska Water Distribution 3 is the second highest distribution category out of 4 levels
- Alaska Water Distribution 3 requires
  - High school diploma
  - Passing of level 3 exam
  - 4 years of qualified experience
- Alaska Water Distribution 3 exam Association of Boards of Certification (ABC) is equivalent to Hawaii Water Distribution System Operator Grade 3 exam (ABC)

8 **Crocker, Christopher B. Grade 4 Reciprocity** **Approve Grade 4 Reciprocity**

Electric City Utilities
Supervisor Mark Fowler
Water Line Tech
10 yrs

Perform service connections and disconnections, conduct water meter readings to ensure accurate customer billing, frontline customer service by addressing and resolving issues efficiently, locate and mark water lines, maintain and repair water distribution systems, inspect and test backflow prevention devices

- South Carolina Water Distribution Operator Level A #2429 expires 6/30/2026
- South Carolina Water Distribution Operator Level A is the highest distribution category out of 4 levels
- South Carolina Water Distribution Operator Level A requires
  - High school diploma
  - Passing of Level A exam
  - 4 years of qualified experience
- South Carolina Water Distribution Operator Level A exam (ABC) is equivalent to Hawaii Water Distribution System Operator Grade 4 exam (ABC)

ATTACHMENT 2
WATER TREATMENT PLANT OPERATOR (WTPO) DECISIONS
5-27-2026

1 **Beard, Jeff Grade 1** **Approve Grade 1**

156 Hawaiian Shores
Chlorination
Supervisor Jeff Sargent
General Manager
1 yr

Maintain chemical feed system for storage tanks, ensure metering pump is running correctly and that the sodium hypochlorite barrels are switched out and combined, operate chemical feed to maintain a desired residual

- Distribution System Operator (DSO) 2 certified

2 **Burdett, Brydon P. Grade 1** **Approve Grade 1**

647 St. Stephens
Chlorination
Supervisor James Ano
Operations Manager
2 yrs/4 mos

Chlorine residual testing, calculations, dosing adjustments, inventories and repairs

- DSO 2 certified

3 **O'Neil, William E. Jr Grade 1** **Approve Grade 1**

130 South Kohala
Chlorination
Supervisor Greg Goodale
Waterworks Helper, District
27 yrs

Take chlorine residuals, calculate chlorine usage, adjust chlorine feed rate, repair chlorine regulators, change chlorine gas cylinders or add chlorine tablets, maintain chlorine stock, change CL17 reagents, submit chlorination and pumpage reports

- DSO 3 certified

4 **Medeiros, Jason E. Grade 2** **Approve Grade 2**

213 Makawao
Direct Filtration, Membrane Filtration
Supervisor Kelly Wright
2 yrs

Assisted in the operation of water treatment plant that includes: perform daily number collecting and logging of water quality, training with Supervisory Control and Data Acquisition (SCADA), performed plant maintenance such as pinning of filter membranes or changing out membranes, cleaning of raw pump strainers, transferring chemicals and assisting with problems, daily water quality lab sampling including testing for potential of hydrogen (pH), chlorine, alkalinity and ultraviolet (UV)

5 **Trissel, James D. Grade 2 Reciprocity** **Approve Grade 1 Reciprocity**

City of Homer
Chlorination, Corrosion control
Supervisor Todd Cook
Utility Manager
2 yrs

Daily labs include chlorine dosage, turbidity and pH, membrane integrity tests, addition of chemicals and testing to ensure quality treatment, onsite chlorine generator testing to ensure proper dosage of chlorine

- Alaska Water Treatment 1 #15274 expires 12/31/2026
- Alaska Water Treatment 1 is the lowest water treatment category out of 4 levels
- Alaska Water Treatment 1 requires
  - High school diploma
  - Passing of level 1 exam
  - 1 years of qualified experience
- Alaska Water Treatment 1 exam Association of Boards of Certification (ABC) is equivalent to Hawaii Water Treatment Plant Operator Grade 1 exam (ABC)
- Applicant requested a Grade 2 however he only has a current Alaska Water Treatment 1 certificate

ATTACHMENT 3
CONTINUING EDUCATION UNIT (CEU) DECISIONS
5-27-2026

Hawaii Courses

1 **Emergency Deployment of Water Treatment Systems During Disaster**

3/11/26
United States (US) Environmental Protection Agency (EPA)
1.0 Contact Hour
Not approved

This webinar will provide an overview of the Water on Wheels – Emergency Mobile Water Treatment System (Wow Cart) and discussion on the Association of State Drinking Water Administrators survey of state programs on pre-approval of short-term emergency drinking water systems. It will discuss guidelines for acceptance and monitoring of systems, pre-deployments, and training water utility staff in the operation of these systems.

- Use of Wow Cart has not been approved by the State of Hawaii Safe Drinking Water Branch

2 **Addressing Cybersecurity in Risk and Resilience Assessments (RRA) and Emergency Response Plans (ERP)**

4/23/26
US EPA
1.0 Contact Hour
0.1 CEUs

Topics:

- Learn what is required in an RRA according to Safe Drinking Water Act (SDWA) 1433
- Learn what is required in an ERP according to SDWA 1433
- Learn how to address cybersecurity in the RRA and ERP
- Know how to certify completion of the RRA and ERP to EPA prior to the upcoming deadlines in 2026

3 **Building Cyber Resilience Using EPA's Water and Wastewater Cybersecurity Incident Response Plan Template**

4/30/26
US EPA
1.5 Contact Hours
0.15 CEUs

Topics:

- Why incident response planning matters
- Template overview
- Key components of the template
- Applying the template to your utility
- Additional resources to support the development of the template

4 **Small Systems Big Performance: How to Select the Right Per- and Polyfluoroalkyl Substances (PFAS) Removal Technology for Your Rural System**

4/30/26
National Rural Water Association (NRWA)
1.0 Contact Hour
0.1 CEUs

This webinar will provide participants with a playbook for selecting and implementing the Best Available Technology (BAT) for PFAS removal. The current state of regulation and recent changes, media types and selection based on water characteristics will be covered.

5 **Water Storage Asset Management: Using Protective Coatings to Create an Unlimited Life Cycle**

5/7/26
NRWA
1.0 Contact Hour
0.1 CEUs

This presentation's focus will be to discuss the details of water storage tank interior lining and exterior coating systems called out in American Water Works Association (AWWA) D102, how to identify them, their properties, benefits, and their expected life cycles and cost of ownership.

6 **Modernizing Water Assets with Polysiloxanes**

5/14/26
AWWA
1.0 Contact Hour
0.1 CEUs

Topics:

- Learn about the extended life expectancy of polysiloxane coatings
- Explore water storage operational benefits for maintaining high water quality standards
- Discover the advantages of polysiloxane coating technologies

7 **Cybersecurity in the Water Sector**

5/20/26
AWWA Hi
4.5 Contact Hours
0.45 CEUs

This workshop was approved at the 2/25/2026 board meeting under Jumpstarting Your Water Utility's Cybersecurity Maturity for 6.5 contact hours (0.65 CEUs) on 5/7/2026. The contact hours have been shortened to 5.5 contact hours on 5/20/2026. CEUs should be reduced to 0.55 CEUs. Content remains the same.

8 **Addressing Power Outages in Risk and Resilience Assessments and Emergency Response Plans**

5/27/26
US EPA
1.0 Contact Hour
0.1 CEUs

This webinar will share practical ways Community Water Systems (CWS)s can address loss of power in the RRA and ERP.

9 **Advancing PFAS Removal from Pilot to Plant**

9/3/26
AWWA
1.0 Contact Hour
0.1 CEUs

This webinar introduces an innovative treatment technology designed specifically to help water utilities achieve PFAS removal goals reliably, sustainably, and at lower lifecycle costs than traditional methods.

Repeating Courses

10 **Cybersecurity Procurement Checklist Tool Training**

US EPA
1.5 Contact Hours
0.15 CEUs

Topics:

- Demonstrate how to use EPA's Cybersecurity Procurement Tool
- Go through some of the questions from the Evaluation Tool, suggested documentation to review and potential questions to ask when conducting an evaluation
- Provide information on the cybersecurity resources and technical assistance offered by EPA

11 **Water Cybersecurity Assessment Tool Training**

US EPA
1.5 Contact Hours
0.15 CEUs

This training was approved on 5/22/2024 for 0.2 CEUs (2 contact hours). However, contact hours have been reduced to 1.5 contact hours, therefore CEUs should be reduced to 0.15 CEUs. Content remains the same.

Topics:

- Cybersecurity Controls from EPA's Checklist
- Overview of the Assessment Report and Risk Mitigation Plan

12 **Water Treatment Plant Operator 1 & 2 Certification Review**

Rural Community Assistance Corporation (RCAC)
12 Contact Hours
1.2 CEUs

Topics:

- Source Water
- Water Quality
- Coagulation, Flocculation, Sedimentation and Filtration
- Disinfection
- Coliform Sampling and Basic Drinking Water Regulations
- Microbial Contaminants
- Maintenance
- Safety
- Math

13 **What Are Pressure Reducing Valves (PRV)s**

RCAC
6.5 Contact Hours
0.65 CEUs

Topics:

- Where are PRVs used
- How do PRVs work
- Setting up PRVs
- Adjusting PRVs
- Maintenance of PRVs
- Troubleshooting
- Hands on workshop

14 **2026 Board of Water Supply Sanitary Survey Training**

Carollo
2.0 Contact Hours
0.2 CEUs

This training provides an overview of the sanitary survey program conducted by the SDWB. It provides insight to the inspector's focus during a sanitary survey so the system can prepare in advance to minimize any significant deficiency or recommendation findings.

15 **Fundamentals of Microbiology**

University of Hawaii (UH) Hilo
60 Contact Hours
3.0 CEUs

This laboratory course complements the fundamentals of microbiology lecture with experiments. Outcomes of the course include ability to conduct experimental procedures, interpret and analyze results, and reach conclusions through examining experimental data.

- ½ credit is given to college level microbiology courses

Correspondence/Online Courses

16 **Additional Treatments in Drinking Water**

Watura
1.5 Contact Hours
0.15 CEUs

Topics:

- Additional Treatments in Drinking Water
- Lime Softening
- Corrosion Control
- Fluoridation
- Iron and Manganese Treatment
- Activated Carbon
- Membrane Filtration
- Ion Exchange
- PFAS Treatment

17 **Chemical Reactions in Water Treatment**

Watura
1.0 Contact Hour
0.1 CEUs

Topics:

- Potential of hydrogen (pH)
- Acid-Base Reactions
- Oxidation and Reduction
- Redox Reactions
- Water Mineralization
- Water Hardness
- Alkalinity
- Solubility

18 **Components of a Motor Control Center (MCC)**

Watura
1.5 Contact Hours
0.15 CEUs

Topics:

- Purpose of MCCs in Water and Wastewater Systems
- Electrical Safety in MCCs
- MCC Structure and Compartments
- Circuit Breakers and Fuses
- Contractors and Overload Relays
- Reduced Voltage Starters
- Variable Frequency Drives
- Auxiliary Relays
- Human-Machine Interface
- Programmable Logic Controller

19 **Cybersecurity**

Watura
2.0 Contact Hours
0.2 CEUs

Topics:

- Introduction to Cybersecurity
- The Risks of a Cyberattack
- Cybersecurity for Water Utilities
- Most Common Types of Cyberattacks
- Hackers
- What to do in the Event of a Cyberattack
- Passwords
- Emails
- Data Backup
- Risks of Using Personal Devices
- Access Rights
- Remote Working
- Software Updates
- Downloading Software
- Online Payments
- Protecting Smartphones and Tablets

20 **Disinfection in Drinking Water Distribution Systems**

Watura
1.0 Contact Hour
0.1 CEUs

Topics:

- Purpose of Disinfection in Drinking Water Distribution Systems
- Chlorination Using Chlorine Gas or Sodium Hypochlorite
- Advantages and Disadvantages of Chlorination
- Maintaining Chlorine Residuals Throughout the System
- Chlorine Gas Safety Recommendations
- Hypochlorination Safety Recommendations
- Flushing and Cleaning Distribution Systems
- Emergency Disinfection Procedures

21 **Disinfection in Drinking Water Treatment**

Watura
2.0 Contact Hours
0.2 CEUs

Topics:

- Purpose of Disinfection in Water Treatment
- Pathogenic Microorganisms
- Other Microbiological Risks
- Assessing the Microbiological Quality of Water
- Forms of Chlorine and the Influence of pH
- Chlorination Using Chlorine Gas or Sodium Hypochlorite
- Advantages and Disadvantages of Chlorination
- Chlorine Measurement Methods
- Chlorine Disinfection Operating Parameters
- Chlorine Gas Safety Recommendations
- Hypochlorination Safety Recommendations
- Chlorine Dioxide Disinfection
- Ozone Disinfection
- UV Disinfection

22 **Drinking Water and Wastewater System Mapping**

Watura
1.5 Contact Hours
0.15 CEUs

Topics:

- Importance of Mapping in Drinking Water and Wastewater Systems
- Geographic North, Map Scales, and Elevation
- Types of Maps Used in Drinking Water and Wastewater Systems
- How to Read Drinking Water Distribution System maps
- Profile Drawing
- Geographic Information System (GIS)
- Field Data Collection and Mapping Updates
- Common Mapping Errors and Troubleshooting

23 **Electricity in Drinking Water and Wastewater Systems**

Watura
1.0 Contact Hour
0.1 CEUs

Topics:

- Electricity
- Voltage
- Current
- Resistance
- Characteristics of Electricity
- Single-Phase Alternating Current
- Three-Phase Alternating Current
- Transformer
- Journey of Electricity

24 **Groundwater Withdrawal**

Watura
1.0 Contact Hour
0.1 CEUs

Topics:

- Basic Concepts of Geology
- Basic Concepts of Hydrogeology
- Different Types of Hydrogeological Contexts
- Special Characteristics of Karst and Alluvial Aquifers
- Groundwater Contamination
- Springs and Wells
- Water Well Components and Characteristics

25 **Laboratory Equipment and Procedures**

Watura
1.5 Contact Hours
0.15 CEUs

Topics:

- Overview of Lab Equipment
- Safety Protocols in the Lab
- Sampling Purposes in Wastewater and Drinking Water
- Compatible Storage
- Lab Units
- Making a Dilution
- Performing a Titration
- Interpreting Lab Results
- Common Sources of Error and How to Avoid Them
- Troubleshooting Lab Procedures

26 **Math Grade I – Part I**

Watura
1.5 Contact Hours
0.15 CEUs

Topics:

- Tackle Math with Confidence
- Order of Operations
- Metric System
- One-Step Conversions
- Distance Conversions
- Temperature Conversions
- Volume conversions
- Pressure Conversions
- Flow Conversions
- Practice Test

27 **Math Grade I – Part II**

Watura
2.0 Contact Hours
0.2 CEUs

Topics:

- Calculating Percentages
- Calculating Averages
- Checking the Units
- Perimeter Definition
- Calculating the Perimeter of a Rectangle
- Calculating the Perimeter of a Circle
- Area Definition
- Calculating the Area of a Rectangle
- Calculating the Area of a Circle
- Volume Definition
- Calculating the Volume of a Rectangular Shape
- Calculating the Volume of a Cylinder
- Practice Test

28 **Stages of Drinking Water Treatment**

Watura
1.0 Contact Hour
0.1 CEUs

Topics:

- Main Stages of Drinking Water Treatment
- Preliminary Treatment for Drinking Water
- Coagulation, Flocculation, and Sedimentation
- Filtration
- Disinfection
- Sludge Management in Drinking Water Treatment
- Additional Treatment

29 **Surface Water Sources**

Watura
1.0 Contact Hour
0.1 CEUs

Topics:

- Surface Water Sources in the US
- Water Cycle and Surface Runoff
- The Water Cycle
- Surface Water Contamination
- Source Water Protection
- Intake Structures
- Operating Challenges
- Aquatic Species Control

30 **Water Storage**

Watura
1.0 Contact Hour
0.1 CEUs

Topics:

- Purposes of Water Storage
- Storage Facility Types and equipment
- Types of Storage Tanks
- Components of a Storage Tank
- Determining Storage Capacity Requirements
- Common Water Quality Issues in Storage
- Inspections and Maintenance of Storage Tanks
- Preparing for Emergencies and Natural Disasters

31 **Emergency Response Planning**

RCAC
2.0 Contact Hours
0.2 CEUs

This workshop equips water system personnel with knowledge and tools to respond proactively and effectively to emergencies, ensuring resilience and protection of the communities they serve.

Mainland Courses

32 **2025 Alberta Water & Wastewater Operators Association (AWWOA) Annual Operators Seminar**

3/10-14/25
AWWOA
Canada
12 Contact Hours
1.2 CEUs

Topics:

- Alberta Environment and Parks EPA Update
- Supporting Drinking Water Systems in Wildfire-Impacted Watersheds
- Water's Role in Uniting Operators, Communities, and Futures
- Treatment Options for Meeting Health Canada's Fluoride Maximum Acceptable Concentration (MAC) in Groundwater
- Bow Island Water Treatment Plant (WTP) Rockwell Small Logic Controller (SLC) 5/05 Migration Case Study
- Chemical Feed Systems
- Service Lateral Maintenance Strategies
- Operator Involvement and Leadership
- Zero Chlorine Senso
- Optimizing Freshwater Quality Through Advanced Oxygenation Techniques
- WTP Filter Capacity Upgrades
- Water Treatment Plant Liquid Ammonium Sulfate Upgrades
- Bearspaw South Feedermain Failure and Return to Service

33 **Annual Conference & Expo (ACE) 2025**

6/9-12/25
AWWA
Colorado
10.5 Contact Hours
1.05 CEUs

Topics:

- Maximizing the Value of your Existing Infrastructure Assets
- Advances in Asset Management processes
- Advancements in Pipeline Inspection and Assessment Techniques
- Managing Breaking Water Mains
- Sustainable Infrastructure Case Studies
- Smart Water Revolution
- Dynamic Digital Twins and Artificial Intelligence (AI)
- Smart Water Loss Technology
- Water Loss Control Plan Implementation
- Leak Detection Technology Case Studies
- Water Loss Auditing

34 **Tri-State Seminar 2025**

8/4-7/25
California Water Environment Association (CWEA), Nevada Water Environment Association (NWEA), Arizona Water Association (AZWA)
Nevada
7.0 Contact Hours
0.7 CEUs

Topics:

- Big Pipes, Big Data
- Soil Based Bacteria: Nature's Natural Solution in Industrial and Municipal Applications
- Fundamentals of Membrane Filtration and Reverse Osmosis
- Intro to Line Stops, Hot Taps, Valve Insertions and Pipe Freezing
- Corrosion Protection Best Practices for Critical Water Assets
- For a Few Dollars More, You Can Greatly Increase the Life and Efficiency of Your Pumps
- Utility Locating Technologies

35 **Rocky Mountain Water Conference 2025**

8/24-27/25
AWWA Rocky Mountain
Colorado
1.5 Contact Hours
0.15 CEUs

Topics:

- High Mountain Source Water Protection: Pump Stations and Pre-Sed Reservoir
- Ute Water Conservancy District's Emergency Water Supply
- Planning for Startup of the Enhanced Brighton WTP

36 **2026 AWWOA Annual Operators Seminar**

3/9-13/26
AWWOA
Canada
12 Contact Hours
1.2 CEUs

Topics:

- The Water School
- Clean Reservoir – Easy Maintenance
- Ensuring Cybersecurity and Operational Resilience in Water Treatment Facilities
- On Site Chlorine Generation vs Sodium Hypo-Capex/Operation & Maintenance (O&M)
- Comparing Approaches to RO/NF Permeate Stability
- Adventures with Artificial Intelligence in Drayton Valley
- Chloramination Monitoring and Control
- Duck Ops – The Big Rescue
- Show Me the Money – A Municipality's Guide to Grant Writing
- Using Total Organic Carbon (TOC) Analysis in Place of Biological Oxygen Demand (BOD) or Chemical Oxygen Demand (COD) for Regulatory Reporting
- Alberta Environment Certification
- The Many Faces of Buffalo Pound WTP
- Wildfire, Isolation, and Determinations; Bringing Potable Water Back
- Introduction to Supervision

37 **2026 Michigan Rural Water Association (MRWA) Annual Conference**

3/17-20/26
MRWA
Michigan
11.0 Contact Hours
1.1 CEUs

Topics:

- Asset Management
- Operator Ethics: The Invisible Backbone of Operations
- Lead and Copper Updates
- A Simple Introduction to Chemistry
- Maps and Drawings
- PFAS Treatment for Rural Water and Wastewater Treatment Systems
- Source Water Protection Program Plan Development and Implementation
- Water PFAS

38 **2026 American Backflow Prevention Association (ABPA) International Conference & Trade Show**

5/4-6/26
ABPA
Nevada
9.0 Contact Hours
0.9 CEUs

Topics:

- Association for State Drinking Water Administrators Efforts
- Factors Causing Backflow and the Associated Health Risks
- One Size Does Not Fit All – Customizing Cross-Connection Control Plans
- New Orleans Backflow Prevention: The Glacier-Paced Success Story of Bringing a Program Back In-House
- Unique, Comical and Downright Dangerous Situations Found During Hazard Assessment Surveys
- Does Your Water System Have Microbiologic Corrosion (MIC) and What It Means for Fire Protection Systems
- Effects of Retrofitting Cross Connection Control (CCC) on Fire Sprinkler Systems
- Legal Liabilities of Cross-Connection Control Program Administrators, Testers and Water Users
- Emerging Trends in Above Ground Valve Installation
- From Reactive to Proactive: Closing the Resource Gap in Backflow
- Qualified is not Competent; Competent is not Qualified – Exploring Common Misconceptions
- Legal Issues to Consider when Disqualifying a Tester in Your Jurisdiction