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

KENNETH S. FINK, M.D., M.G.A., M.P.H.
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File: SDWB
Minutes 11-29-2023

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

DATE: November 29, 2023

TIME: 10:00 a.m.

MEMBERS PRESENT: Jodi Yamami (2nd term expires 6/30/24)
Mark Prescott (2nd term expires 6/30/24)
James Landgraf (1st term expires 6/30/25)

A. Call to Order

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

B. Old Business

- The Board unanimously approved the August 23, 2023 meeting minutes.

C. New Business

- DSO Certification Applications

  The Board unanimously approved the following applications for certification:

	Name	Grade Requested	Grade Approved
1	Wong, Wilfred	1	1
2	Ancheta, Garrett	3	3
3	Ewen, Daniel	3	3
4	Melchor, Florendo	3	3
5	Hale, Devin	4	4
6	Arentz, Christopher	4 Reciprocity	4 Reciprocity

  For detailed information on the DSO applications, please refer to Attachment 1.

- WTPO Certification Applications

The Board unanimously approved the following applications for certification:

	Name	Grade Requested	Grade Approved
1	Ignacio, Wesley	1	1
2	Kamai, Rosaleen	1	1
3	Matsu, Lindo	1	1
4	Namakaeha, Brennan	1	1
5	Victorino, Matthew	1	1
6	Bitancor, Romel	2	2
7	Arentz, Christopher	4 Reciprocity	2 Reciprocity
8	Ferrer, Ronald	4 Reciprocity	4 Reciprocity

For detailed information on the WTPO applications, please refer to Attachment 2.

- CEU Requests

The Board unanimously approved the following CEU requests:

	Course	Date	Sponsor	CEUs Approved
1	Honolulu Board of Water Supply External Corrosion Standards	2/7/23	Bowers Kubota Consulting	0.2
2	Trenton Wax Tape Anticorrosion Wrap System and Patch-Pad Exothermic Weld Protector	4/11/23	Bowers Kubota Consulting	0.15
3	Field Repair Training	4/26/23	Bowers Kubota Consulting	0.15
4	Administration and Inspection of BWS Pipeline Projects	6/14/23	Bowers Kubota Consulting	0.15
5	Expanding Water Agency Data and Intelligence with Ami and Monitoring Technologies	9/26/23	AWWA	0.1
6	How Metering-as-a-Service Can Reduce Risk and Improve Outcomes in	10/10/23	AWWA	0.1

	Advanced Metering Project			
7	PVC Pipe: Safety and Sustainability	10/10/23	AWWA	0.1
8	Countdown to Compliance: Leveraging Predictive Modeling for the LCRR's 2024 Deadline	10/12/23	NRWA	0.1
9	LSLI: T-Minus 12 Months	10/16/23	NRWA	0.15
10	PFAS and Emerging Contaminant Technology Transfer to States and Tribes	10/18/23	US EPA	0.1
11	Advanced Monitoring Solutions for Water and Wastewater	10/19/23	NRWA	0.1
12	2023 HWWA Conference	10/25-27/23	HWWA	17 sessions @ 0.05/ session
13	Fifth Unregulated Contaminant Monitoring Rule (UCMR5)	10/31/23	US EPA	0.1
14	Harnessing Data for More Reliable PCCP Pipelines	10/31/23	AWWA	0.1
15	Lead Line, Water Loss, and Bill Collection Initiatives	11/6/23	NRWA	0.1
16	Funding to Mitigate Disasters with Fed Funds	11/7/23	US EPA	0.1
17	Round Mountain Advanced Treatment Pilot Project	11/9/23	NRWA	0.1
18	How to Prepare Your Utility for Disasters	11/14/23	US EPA	0.15
19	Flushing and Re-energizing a Section of Water Main After a Closure	11/15/23	Bowers Kubota Consulting	0.1
20	Developing Standard Operating Procedures	11/16/23	NRWA	0.1
21	Risk, Crisis, and General Communication	11/28/23	US EPA	0.1
22	Unlocking Your Plant's Potential: Optimized Quality, Reporting & Operations	11/30/23	AWWA	0.1
23	Sustainable Infrastructure,	12/12/23	AWWA	0.1

	Resilient Water Supplies: Digital Solutions for Water Loss			
24	Topics, Technologies & Best Practices for Advanced Treatment	repeating	AWWA CA-NV	1.2
25	Conventional Water Treatment, Best Practices & Issues	repeating	AWWA CA-NV	0.8
26	Basic Electrical Safety 2023	repeating	HRWA	0.1
27	Vehicle Safety 2023	repeating	HRWA	0.1
28	Traffic and Work Zone Safety 2023	repeating	HRWA	0.1
29	Pump Safety 2023	repeating	HRWA	0.1
30	Lock Out/Tag Out 2023	repeating	HRWA	0.1
31	Water Sampling Safety 2023	repeating	HRWA	0.1
32	Fundamentals of Excavation, Trenching and Pipe Safety Refresher 2023	repeating	HRWA	0.1
33	First Aid for Burns 2023	repeating	HRWA	0.1
34	Safety Around Wells 2023	repeating	HRWA	0.1
35	Fire Extinguisher Safety 2023	repeating	HRWA	0.1
36	Chemical Safety 2023	repeating	HRWA	0.1
37	Chlorine Handling and Safety 2023	repeating	HRWA	0.1
38	Confined Space Safety Refresher 2023	repeating	HRWA	0.3
39	Noise Exposure 2023	repeating	HRWA	0.1
40	Working in Hot Conditions 2023	repeating	HRWA	0.1
41	PPE 2023	repeating	HRWA	0.1
42	Water Supply Operations and Non-Revenue Water	Online	AWWA eLearning	0.2
43	Water Supplies & Demand Management	Online	AWWA eLearning	0.5
44	Pumps and Motors/O&M Pre Cert Training	Online	Nevada RWA	0.3
45	D1/D2 Exam Preparation and Math Refresher	Online	Nevada RWA	0.3
46	D3/D4 Exam Preparation	Online	Nevada	0.3

	and Intermediate Math		RWA	
47	Source Water and Geology/Water Treatment Operations	Online	Nevada RWA	0.3
48	Networking/Pumps and Motors/Storage Facilities, Pipe Conveyances and Hydrants/Facility Tour	Online	Nevada RWA	0.35
49	Water Treatment: Disinfection - Part 2	Online	WaterLMS	0.1
50	[ACR] Pumps & Pumping: Abnormal Operating Conditions	Online	WaterLMS	0.1
51	[ACR] Pumps & Pumping: Special Pumping Units	Online	WaterLMS	0.1
52	[ACR] Pumps & Pumping: Lineshaft Turbine Operating Conditions	Online	WaterLMS	0.1
53	[ACR] Pumps & Pumping: Normal Operating Conditions	Online	WaterLMS	0.1
54	[ACR] Pumps & Pumping: Pump Piping System	Online	WaterLMS	0.2
55	[ACR] Pumps & Pumping: Pump Hydraulics	Online	WaterLMS	0.2
56	[ACR] Pumps & Pumping: Selection & Replacement of Mechanical Seals	Online	WaterLMS	0.2
57	[ACR] Pumps & Pumping: Selection & Replacement of Pump Packing	Online	WaterLMS	0.1
58	[ACR] Pumps & Pumping: Centrifugal Pump Repair	Online	WaterLMS	0.2
59	[ACR] Pumps & Pumping: Centrifugal Pump Components	Online	WaterLMS	0.3
60	[ACR] Pumps & Pumping: Centrifugal Pump Types	Online	WaterLMS	0.1
61	[ACR] Pumps & Pumping: Centrifugal Pump Classification & Theory	Online	WaterLMS	0.1
62	[ACR] Chlorine O&M: Disinfection	Online	WaterLMS	0.1
63	[ACR] Chlorine O&M:	Online	WaterLMS	0.1

	Chemical Properties			
64	[ACR] Chlorine O&M: Reactions and Effects	Online	WaterLMS	0.1
65	[ACR] Chlorine O&M: Gas Chlorine Stations	Online	WaterLMS	0.1
66	[ACR] Chlorine O&M: Cylinders and Connections	Online	WaterLMS	0.1
67	[ACR] Chlorine O&M: Gas Chlorinators O&M	Online	WaterLMS	0.2
68	[ACR] Chlorine O&M: Hypochlorinator O&M	Online	WaterLMS	0.2
69	[ACR] Chlorine O&M: Safety	Online	WaterLMS	0.2
70	[ACR] Chlorine O&M: Monitoring	Online	WaterLMS	0.1
71	[ACR] Chlorine O&M: Math	Online	WaterLMS	0.2
72	[ACR] Distribution System: Introduction	Online	WaterLMS	0.1
73	[ACR] Distribution System: Piping	Online	WaterLMS	0.2
74	[ACR] Distribution System: Valves	Online	WaterLMS	0.2
75	[ACR] Distribution System: Fire Hydrants	Online	WaterLMS	0.1
76	[ACR] Distribution System: Storage	Online	WaterLMS	0.2
77	[ACR] Distribution System: Booster Station	Online	WaterLMS	0.1
78	[ACR] Distribution System: Service Connections	Online	WaterLMS	0.1
79	[ACR] Distribution System: Safety	Online	WaterLMS	0.1
80	[ACR] Distribution System: Inspection	Online	WaterLMS	0.2
81	[ACR] Distribution System: Meters	Online	WaterLMS	0.1
82	[ACR] Distribution System Construction: Pre-Construction Planning	Online	WaterLMS	0.1
83	[ACR] Distribution System Construction: Implementing Construction Plans	Online	WaterLMS	0.2
84	[ACR] Distribution System Construction: Blueprint	Online	WaterLMS	0.1

	Reading			
85	[ACR] Distribution System Construction: Safety	Online	WaterLMS	0.1
86	[ACR] Distribution System Construction: Traffic Control	Online	WaterLMS	0.1
87	[ACR] Distribution System Construction: Pipe Materials	Online	WaterLMS	0.1
88	[ACR] Distribution System Construction: Trenching Techniques	Online	WaterLMS	0.2
89	[ACR] Distribution System Construction: Cave in Protection Shoring	Online	WaterLMS	0.1
90	[ACR] Distribution System Construction: Pipe Laying	Online	WaterLMS	0.1
91	[ACR] Distribution System Construction: Hydrants Valves Appurtenance	Online	WaterLMS	0.2
92	[ACR] Distribution System Construction: Thrust Blocks	Online	WaterLMS	0.1
93	[ACR] Distribution System Construction: Corrosion Control	Online	WaterLMS	0.1
94	[ACR] Distribution System Construction: Bedding Backfill	Online	WaterLMS	0.1
95	[ACR] Distribution System Construction: Testing Disinfection	Online	WaterLMS	0.1
96	[ACR] Electrical: Atomic Theory	Online	WaterLMS	0.1
97	[ACR] Electrical: Control Systems	Online	WaterLMS	0.2
98	[ACR] Electrical: Measurements	Online	WaterLMS	0.1
99	[ACR] Electrical: Circuits Basics	Online	WaterLMS	0.1
100	[ACR] Electrical: Electromagnetism	Online	WaterLMS	0.1
101	[ACR] Electrical: Normal Operations	Online	WaterLMS	0.2

102	[ACR] Electrical: Power Systems	Online	WaterLMS	0.3
103	[ACR] Electrical: Reading Electrical Diagrams	Online	WaterLMS	0.1
104	[ACR] Electrical: Troubleshooting Electrical Problems	Online	WaterLMS	0.1
105	[ACR] Fire Hydrants: History, Operations, and Inspections	Online	WaterLMS	0.1
106	[ACR] Fire Hydrants: Data Collection & Record Keeping	Online	WaterLMS	0.1
107	[ACR] Fire Hydrants: Normal Maintenance Repair	Online	WaterLMS	0.1
108	[ACR] Hydraulics: The Basics	Online	WaterLMS	0.1
109	[ACR] Hydraulics: Liquids at Rest	Online	WaterLMS	0.2
110	[ACR] Hydraulics: Flow in Closed Conduits	Online	WaterLMS	0.4
111	[ACR] Hydraulics: Pump Hydraulics	Online	WaterLMS	0.2
112	[ACR] Hydraulics: Flow in Open Channels	Online	WaterLMS	0.2
113	[ACR] Utility Management: Introduction	Online	WaterLMS	0.1
114	[ACR] Utility Management: Organizational Management	Online	WaterLMS	0.2
115	[ACR] Utility Management: Planning Management	Online	WaterLMS	0.1
116	[ACR] Utility Management: Personnel Management	Online	WaterLMS	0.1
117	[ACR] Utility Management: Utility Operation Management	Online	WaterLMS	0.1
118	[ACR] Utility Management: Utility Financial Management	Online	WaterLMS	0.1
119	[ACR] Utility Management: Capacity Development Management	Online	WaterLMS	0.1
120	[ACR] Water Sources:	Online	WaterLMS	0.2

	Hydrology			
121	[ACR] Water Sources: Surface Water Operations	Online	WaterLMS	0.2
122	[ACR] Water Sources: Groundwater Operations	Online	WaterLMS	0.2
123	[ACR] Water Sources: Pumping Systems	Online	WaterLMS	0.2
124	[ACR] Water Sources: Transmission Lines	Online	WaterLMS	0.1
125	Predicting Contaminant Removal in Activated Carbon Systems	Online	AWWA eLearning	0.2
126	2023 WaterPro Conference	9/25-27/23	NRWA	9 sessions @ 0.1/ session
127	2024 Virtual Operator Conference	2/6-8/24	Illinois State Water Survey and RCAP	12 sessions @ 0.1/ session

For detailed information on the CEU requests, please refer to Attachment 3.

- DSO Certification Exam Results

The Board was notified of the following results of the DSO certification exam administered in October 2023. Paper-based exams were administered on Oahu, Maui, Molokai, Kauai, and the Big Island. Computer-based exams were administered on Maui. Five out of 20 operators passed for an overall passing rate of 25%.

	Examinee	Grade	Certification
1	Blankenfeld-Kaheiki, George	1	None
2	Fuchigami, Jacob	1	D1-546
3	Gago, S'mon	1	None
4	Gomes, Paul	1	None
5	Ihara-Takase, Colby	1	D1-547
6	Kealoha-Hall, Christopher	1	None
7	Manuel, Kalanikaukini	1	None
8	Nakamura, Kyle	1	D1-548
9	Nunes, Joshua	1	D1-549
10	Sanchez, Brian	1	None

11	Tranilla, Riccardo	1	None
12	Bitancor, Romel	2	None
13	Kamai, Rosaleen	2	None
14	Oguma, Garrett	2	None
15	Tabangcura, Wilfred	2	None
16	Oducado, Justin	3	None
17	Belanio, Rory	4	None
18	Inouye, Alvin	4	None
19	Pantastico, Jacob	4	D4-300
20	Waikiki, Neil	4	None

DSO Exam Results

Grade	Passed	Examinees	Passing Rate
DSO 1	**4**	**11**	**36%**
DSO 2	**0**	**4**	**0%**
DSO 3	**0**	**1**	**0%**
DSO 4	**1**	**4**	**25%**
Total	**5**	**20**	**25%**

- WTPO Certification Exam Results

  The Board was notified of the following results of the WTPO certification exam administered in October 2023. Paper-based exams were administered on Oahu, Maui, Molokai, Kauai, and the Big Island. Computer-based exams were administered on Maui. Five out of 10 operators passed for an overall passing rate of 50%.

	Examinee	Grade	Certification
1	Bueno, Wayne	1	None
2	Hadama, Kelly	1	None
3	Haleamau, Thomas	1	T1-258
4	Miyata, Karli	1	T1-259
5	Mukai, Brian	1	T1-260
6	Weber, Daniel	1	None

7	De Luz, Tanya	2	T2-247
8	Pang Kee, Adrian	2	None
9	Evans, Troy	4	T4-141
10	Paman, Daniel	4	None

WTPO Exam Results

Grade	Passed	Examinees	Passing Rate
WTPO 1	**3**	**6**	**50%**
WTPO 2	**1**	**2**	**50%**
WTPO 3	**--**	**--**	**--**
WTPO 4	**1**	**2**	**50%**
Total	**5**	**10**	**50%**

D. Announcements

- The next board meeting will be scheduled during the month of February 2024.

E. Adjournment

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

Respectfully Submitted,

Jodi Yamami
Board of Certification of
Public Water System Operators

JY:sw

c: Anna Yen, U.S. EPA Region IX [via yen.anna@epa.gov only]
Stephanie Hung, U.S. EPA Region IX [via hung.stephanie@epa.gov only]
James Landgraf, Board Member [via jlandgraf@hawaiiantel.net only]
Mark Prescott, Board Member [via mprescott90@gmail.com only

ATTACHMENT 1
DSO DECISIONS
11-29-2023

1	**Wong, Wilfred K.W. Grade 1** 428 Princeville Supervisor Brad Suizu Operator 1 yr	**Approve Grade 1** Check well sites daily, check and record chlorine residual, record well pump run times hours, check water tank sites, record levels, assist in fire hydrant flow and pressure testing, fire hydrant maintenance or replacement, read water meters, repair or replace water meters
2	**Ancheta, Garrett Grade 3** 205 Kaanapali Supervisor Jorge Cabradilla Utility Operator 3 yrs	**Approve Grade 3** Operate and maintain NaOCl pumping system, take chlorine residual samples, take GAC samples, collect, and submit water samples to DOH, install and repair meters, reading meters, flushing and servicing hydrants and mains, repairing hydrants and mains, exercising and operating valves, operating booster and well pumps, investigating and addressing leaks, provide customer service and address concerns, general maintenance throughout treatment and distribution system • DSO Grade 2 and WTPO Grade 1 certified
3	**Ewen, Daniel E. Grade 3** 345 Schofield Supervisor Will Whaley Plumber, Fire Extinguishing Mechanic 5 yrs/5 mos	**Approve Grade 3** Emergency repairs to water main systems and service lines, line taps for new service connections, installation, maintenance and repair of service valves, ARV, PRV, fire hydrants, installation, testing, maintenance and repair of backflow prevention and cross connection devices, perform flow testing of water mains, fire hydrants and troubleshoot and repair discrepancies • DSO Grade 1 certified
4	**Melchor, Florendo B. Grade 3** 400 Lihue-Kapaa Supervisor Ryan Smith Water Plant Operator 2 yrs 400 Lihue-Kapaa Supervisor Ryan Smith Pipe Fitter Helper 1 yr/10 mos	**Approve Grade 3** Control of liquid sodium hypochlorite systems for disinfection, maintain pumps and control valves, maintain back pressure, mix soda ash, check pumps, distribution lines and transmission lines • DSO Grade 2 and WTPO Grade 1 certified Find and repair water line breaks, de-con of pipe and fittings, flush hydrants, install new water service, pipe taps and maintain distribution system
5	**Hale, Devin C. Grade 4** 135 Hawaii Water Service Supervisor Henry Giltner Cross Connection Control Specialist 4 yrs	**Approve Grade 4** Service and repair water lines, install and read meters, flush and repair hydrants, take chlorine readings, adjust flows, repair chlorine valves, exchange chlorine tanks, troubleshoot, locate leaks on water line, repair CLA valves, install curb stops, build and managed cross connection control program, survey, inventory, inspect water systems, identify potential risks of cross connection, identify properties that are in need of backflow assembly installations at service connections, manage backflow assembly installation projects, test and repair backflow assemblies • DSO Grade 3 and WTPO Grade 1 certified

ATTACHMENT 1
DSO DECISIONS
11-29-2023

6 **Arentz, Christopher L.** **Grade 4 Reciprocity** **Approve Grade 4 Reciprocity**

Anchorage Water and Wastewater Utility Supervisor Clint Buto Utilityman 3 yrs/4 mos	Repair and maintain water key boxes and main line valve top section, operate compressors and vacuum trucks for the cleaning of valve boxes, repair, and height adjustments to fire hydrants, perform large and small live water main connections, document locations of newly installed water valves
Ship Creek Water Treatment Facility Supervisor Joseph Polowy Distribution Operator 1 yr/8 mos	Total coliform sampling, chemical hauling, facility checks, minor maintenance and pressure regulating valve design, construction, maintenance and troubleshooting
Ship Creek Water Treatment Facility Supervisor Joseph Polowy Distribution Operator 10 mos	Operation and management of hydraulic pressure zones, remote maintenance of facilities utilizing SCADA system, handle emergency calls from customers

- Alaska Water Distribution Operator 4 #24346 expires 12/31/2024
- Alaska Water Distribution Operator 4 is the highest water distribution level out of 4 levels in Alaska requiring a high school diploma, 1 year of appropriate continuing education, passing of an Alaska Water Distribution Operator 4 exam, & 6 years of appropriate prior experience
- Alaska Water Distribution Operator 4 exam is equivalent to Hawaii Distribution System Operator Grade 4 exam according to ABC Examination Equivalency Chart

ATTACHMENT 2
WTPO DECISIONS
11-29-2023

1	**Ignacio, Wesley G. Grade 1** 130 South Kohala Chlorination Supervisor Alvin Inouye Operator 4 yrs	**Approve Grade 1** Keep daily logs of well sites which have chlorination in place, monitor Cl2 residuals and rates, replace empty Cl2 150-pound cylinders as needed
2	**Kamai, Rosaleen Grade 1** 335 Waipahu Ewa Waianae Chlorination Supervisor Mark Fujimoto Trades Apprentice 2 yrs/11 mos	**Approve Grade 1** Day to day operations includes troubleshooting and repairing chlorinators, participate in the maintenance and upkeep of chlorination units including the dosing pumps and monitors, handheld colorimeters are used regularly to check that the correct amount of chlorine is being injected for customer safety • DSO Grade 1 certified
3	**Matsu III, Lindo K. Grade 1** 130 South Kohala Chlorination Supervisor Alvin Inouye Operator 9 yrs	**Approve Grade 1** Maintain daily logs and oversee purification apparatus, monitor Cl2 levels and rates and adjust as needed, change out of 150-pound Cl2 cylinders
4	**Namakaeha, Brennan K. Grade 1** 400 Lihue-Kapaa Chlorination, Corrosion Control Supervisor Ryan Smith Operator 1 yr/5 mos	**Approve Grade 1** Control of liquid sodium hypochlorite systems for disinfection, maintain pumps and control valves, maintain back pressure and CRD control valves, mix soda ash, check pumps • DSO Grade 1 certified
5	**Victorino, Matthew Grade 1** 400 Lihue-Kapaa Chlorination, Corrosion Control Supervisor Ryan Smith Assistant Water Plant Operator 9 mos	**Approve Grade 1** Control of liquid sodium hypochlorite systems for disinfection, maintain pumps and control valves, mix soda ash • DSO Grade 1 certified
	428 Princeville Chlorination Supervisor Roy Constantino Operator 3 yrs/3 mos	Check chlorine residuals, handle, and transport chlorine, troubleshoot chemical feed pumps

ATTACHMENT 2
WTPO DECISIONS
11-29-2023

6 **Bitancor, Romel F. Grade 2** **Approve Grade 2**

146 Hawaii Volcanoes National Park
Cartridge Filtration
Supervisor Danial Drake
Operator
6 yrs

Assist in mixing and changing soda ash and chlorine feed tanks, changing chemical injection pumps and injector nozzles, changing house filters and roughing filters as needed, harrowing and backwashing slow sand filters

- DSO Grade 1 and WTPO Grade 1 certified

7 **Arentz, Christopher L. Grade 4 Reciprocity** **Approve Grade 2 Reciprocity**

Ship Creek Water Treatment Facility
Conventional Treatment
Supervisor Joseph Polowy
Treatment Plant Operator
2 yrs/5 mos

Operate and maintain the Ship Creek Water Treatment Facility, set poly aluminum chloride and chlorine dosage based on water quality parameters for that day, perform facility rounds, inspections and preventative maintenance of all treatment process equipment including pumps, valves, tanks, weirs, analyzers, sensors, and flow meters, perform lab analysis and instrument calibrations for water quality and reporting, back wash filters as needed, load chemicals for water treatment process

- Alaska Water Treatment Operator 4 #25613 expires 12/31/2025
- Alaska Water Treatment Operator 4 is the highest water treatment level out of 4 levels in Alaska requiring a high school diploma, 4 years of appropriate continuing education, passing of an Alaska Water Treatment Operator 4 exam, & 4 years of appropriate prior experience
- Alaska Water Treatment Operator 4 exam is equivalent to Hawaii Water Treatment Plant Operator Grade 4 exam according to ABC Examination Equivalency Chart
- Recommend Hawaii WTPO 2 only because of 2 yrs/5 mos treatment experience

8 **Ferrer, Ronald A. Grade 4 Reciprocity** **Approve Grade 4 Reciprocity**

Dunes Community RO Supervisor Dave Boss Water Plant Operator 10 mos	Operate and maintain a 0.75 MGD reverse osmosis water plant, also responsible for operation of the residential reuse system
City of Port Orange Conventional Treatment Supervisor Steve Miller Water Plant Supervisor 3 yrs/7 mos	Operate an 18 MGD lime softening water treatment plant, take readings, titrations, adjust chemical feeds, fluoride dosage, check for proper operation of equipment and take proper action if a problem encountered, serve as after-hours point of contact for main break/lift station issues
City of Lakeland Conventional Treatment Supervisor Perry Cochran Water Plant Operator 2 yrs/10 mos	Operate a 51 MGD and 24 MGD lime softening plant, operator slakers, take samples, mix chemicals, receive tons of chlorine and hook up as needed, maintain backwash filters as needed, take bacteria samples and chlorine residuals in distribution system, check outlying stations for security and proper operation, load lime sludge onto tankers

- Florida Class A Drinking Water Treatment License #0013429 expires 4/30/2025
- Florida Class A Drinking Water Treatment is the highest water treatment level out of 4 levels in Florida requiring a high school diploma, passing of a Class A exam, & 5 years of appropriate prior experience
- Class A Florida exam is equivalent to Hawaii Water Treatment Plant Operator Grade 4 exam according to ABC Examination Equivalency Chart

ATTACHMENT 3
CEU DECISIONS
11-29-2023

Hawaii Courses

1 **Honolulu Board of Water Supply External Corrosion Standards**

2/7/23
Bowers Kubota Consulting
2.0 Contact Hours
0.2 CEUs

Topics included:

- Corrosion and Protected Methods
- Overview of Standards
- Approved Coatings
- Shipping and Handling
- Identifying Markings for DIP
- Field Cuts
- QC and Inspection
- Demonstration of Grinding and Repairing DIP Coated with Ceramawrap

2 **Trenton Wax Tape Anticorrosion Wrap System and Patch-Pad Exothermic Weld Protector**

4/11/23
Bowers Kubota Consulting
1.5 Contact Hours
0.15 CEUs

Topics included:

- Coating Advantages
- Trenton Applications
    - Spot Repairs
    - Girth Welds
    - Buried Piping
    - Atmospheric Piping
    - Submerged
    - Vault
    - Wet & Sweating Pipe
    - Insulated Pipe
- Patch-Pad

3 **Field Repair Training**

4/26/23
Bowers Kubota Consulting
1.5 Contact Hours
0.15 CEUs

Topics included:

- Basics of Corrosion
- Dielectric Coatings for Corrosion Protection
- Properties and Applications of Lifelast Durashield
- Proper Surface Preparation
- Spray Gun Method
- Jars Repair Kit Method
- Curing Times and Handling

4 **Administration and Inspection of BWS Pipeline Projects**

6/14/23
Bowers Kubota Consulting
1.5 Contact Hours
0.15 CEUs

Topics included:

- Pre-Construction
  - Contract Award
  - Notification
  - Surveying
  - Permits
  - Public Outreach
  - Traffic Control
- Construction
  - Trenching
  - Excavation
  - Shoring
  - Pipe Installation
  - Backfilling
  - Valves
  - Hydrants
  - Lines
  - Laterals
  - Pavement
  - Test
  - Chlorination
- Contract Administration and Closeout

5 **Expanding Water Agency Data and Intelligence with AMI and Monitoring Technologies**

9/26/23
AWWA
1.0 Contact Hours
0.1 CEUs

This webinar will highlight how utilities should be thinking about data analysis, and how leading water agencies have successfully leveraged insights from leading technologies to improve performance.

6 **How Metering-as-a-Service Can Reduce Risk and Improve Outcomes in Advanced Metering Projects**

10/10/23
AWWA
1.0 Contact Hours
0.1 CEUs

This presentation highlights how Metering-as-a-Service can mitigate risks, emphasizing the importance of ongoing maintenance to maintain optimal system performance and maximize efficiency while improving customer service.

7 **PVC Pipe: Safety and Sustainability**

10/10/23
AWWA
1.0 Contact Hours
0.1 CEUs

This webinar will turn to science-based insights, rigorous testing results, and thoughts from leading sustainability and toxicology experts to underscore how PVC pipe can help municipalities meet their green infrastructure goals.

8 **Countdown to Compliance: Leveraging Predictive Modeling for the LCRR's 2024 Deadline**

10/12/23
NRWA
1.0 Contact Hours
0.1 CEUs

Topics included:

- Empowering Your Utility
- Stay Ahead of Compliance
- Learn from Industry Experts

9 **LSLI: T-Minus 12 Months**

10/16/23
NRWA
1.5 Contact Hours
0.15 CEUs

This webinar aims to provide lessons learned and address information gaps discovered so far to gain insights on how to optimize ongoing work to gather as much useful information as possible for use in initial inventories.

10 **PFAS and Emerging Contaminant Technology Transfer to States and Tribes**

10/18/23
US EPA
1.0 Contact Hours
0.1 CEUs

This webinar will provide an overview of Non-Targeted Analysis (NTA) Methods that rapidly characterize a broad range of chemicals of immediate and emerging concern, real-world mixtures, and substances of unknown or variable composition and how it can be used to help identify PFAS and other emerging contaminants.

11 **Advanced Monitoring Solutions for Water and Wastewater**

10/19/23
NRWA
1.0 Contact Hours
0.1 CEUs

Topics included:

- Measurement and analysis sensors
- Flow monitoring
- Overflow monitoring
- Telemetry and rainfall
- Environmental water quality monitoring
- Predicative analytics
- Pump station level monitoring
- Industrial discharge analysis
- Anomaly analysis

12 **2023 HWWA Conference**
10/25-27/23
HWWA
17 Drinking Water Topics with full credit @ 30 minutes each or 0.05 CEUs

Drinking Water Topics (30 minutes full credit) include:

- Hydraulic Modeling: A Discussion of Benefits, Best Practices and Lessons Learned from Recent Hawaii Projects
- Improving Employee Retention
- Mahinahina Water Treatment Facility: The Little UV System that Could (Mahinahina Disinfection Project)
- Maui County LCRR Update and Compliance Roadmap
- PFAS Emerging No More: A Quick Start Guide for PFAS Compliance
- A Small System's Approach to Developing and Maintaining a Service Line Inventory
- Using Data to Improve Utility Bill Payment Rates
- Water Loss Management Using Technology to Supercharge Results
- Asset Management Implementation Roadmap
- Introducing iHydrant: Why pressure and temperature monitoring is important (Benefits of Deploying Pressure Monitoring Devices in your Water System)
- Chlorine & Ammonia Gas Conversion to On-site Generation
- Contaminants of Concern: Preparing for 21st Century Water Quality Challenges
- Electrical Safety in the 21st Century
- Everything, Everywhere, All at Once (in the Regulated Drinking Water World)
- DWS Asset Management (Asset Management for Hawaiian Water Utilities)
- Lālāmilo 10-Million-Gallon Water Reservoir Project
- Corrosion and Corrosion Control for Ductile Iron Pipe (Ductile Iron Pipe Research Association DIPRA)

Other Clean Water, Resource, Reuse, Climate Topics (no credit) include:

- Hawaii Mesonet
- Kohala Watershed Partnership: Protecting Forests for Water Supply Sustainability in Kohala, Hawai‘i
- Maui Department of Water Supply Greywater System
- One Water Honolulu for Climate Resilience
- There’s an App for that! An Innovative Public-Private-Philanthropic Approach to Community-Based Rainwater Management
- Using a Carbon-based Treatment Approach for Advancing Water Treatment of Emerging Contaminants
- National Weather Service Climate and Rainfall Outlook
- Growing Hawaii’s Engineering Talent Pipeline
- Hawaiian Electric’s Climate Adaptation Transmission & Distribution Resilience Program

13 **Fifth Unregulated Contaminant Monitoring Rule (UCMR5)**

10/31/23
US EPA
1.0 Contact Hours
0.1 CEUs

Topics included:

- Update on the Fifth Unregulated Contaminant Monitoring Rule
- EPA Fraud Awareness
- PFAS Drinking Water Methods Past, Present, and Future

14 **Harnessing Data for More Reliable PCCP Pipelines**

10/31/23
AWWA
1.0 Contact Hours
0.1 CEUs

This webinar will share information on how condition data can help prevent failures, reduce costs and maintain reliability in Prestressed Concrete Pressure Pipe (PCCP).

15 **Lead Line, Water Loss and Bill Collection Initiatives**

11/6/23
NRWA
1.0 Contact Hours
0.1 CEUs

This webinar will discuss solutions that help to address water leaks and lead line problems, upgrade infrastructure, protect customers and the utility and deliver exceptional service that enhances customer perception and satisfaction.

16 **Funding to Mitigate Disasters with Fed Funds**

11/7/23
US EPA
1.0 Contact Hours
0.1 CEUs

This webinar will highlight free tools and guides available to assist drinking water utilities in detecting, planning, responding to, and recovering from water emergencies.

17 **Round Mountain Advanced Treatment Pilot Project**

11/9/23
NRWA
1.0 Contact Hours
0.1 CEUs

This webinar will introduce a future California Rural Water Association's 'Emerging Technology Program' with associated pilot programs at the Round Mountain Advanced Treatment facility.

18 **How to Prepare Your Utility for Disasters**

11/14/23
US EPA
1.5 Contact Hours
0.15 CEUs

This webinar will demonstrate how to create a Risk and Resilience Assessment and Emergency Response Plan using drought and water contamination scenarios and share tips on how to prepare your utility for disasters.

19 **Flushing and Re-energizing a Section of Water Main After a Closure**

11/15/23
Bowers Kubota Consulting
1.0 Contact Hours
0.1 CEUs

Topics included:

- Connection/Cut and Plug
- Flushing Operation
- Process Steps
- Flow Rate Examples
- Multiple Valve Closure

20 **Developing Standard Operating Procedures**

11/16/23
NRWA
1.0 Contact Hours
0.1 CEUs

This training session will look into the development of Standard Operating Procedures of many different type of operations, operating facilities, and distribution systems performing maintenance on equipment to laboratory testing & verification of instruments.

21 **Risk, Crisis, and General Communication**

11/28/23
US EPA
1.0 Contact Hours
0.1 CEUs

Topics included:

- Conversations with Customers: What We've Learned from Talking with Them
- Drinking Water Risk Communication Toolkit
- EPA Flint Water Response: Risk Communication Case Study

22 **Unlocking Your Plant's Potential: Optimized Quality, Reporting & Operations**

11/30/23
AWWA
1.0 Contact Hours
0.1 CEUs

This webinar will help you discover new ways to turn your everyday data into your greatest advantage. From sensors and bench sheets to SCADA and LIMS, learn how to tap into your data's full potential to optimize chemical dosage, asset maintenance, remote operations, regulatory reporting, and energy consumption.

23 **Sustainable Infrastructure, Resilient Water Supplies: Digital Solutions for Water Loss**

12/12/23
AWWA
1.0 Contact Hours
0.1 CEUs

This webinar will explore ways utilities can future-proof their infrastructure with digital solutions and services ranging from analytics, optimization, and real-time decision support to advanced metering infrastructure and distributed sensor networks to pipeline inspections to minimize water loss and maximize revenue.

ATTACHMENT 3
CEU DECISIONS
11-29-2023

Repeating Courses

24 **Topics, Technologies & Best Practices for Advanced Treatment**

AWWA CA-NV
12.0 Contact Hours
1.2 CEUs

Topics included:

- Water Management
- Treatment Processes
- Controls
- Monitoring
- Laboratory
- Membrane Filtration
- Membrane Desalination
- Biological Filtration
- O&M
- Regulations
- Reporting
- Safety
- Adsorption Exchange
- Finished Water Chemical Stabilization
- Iron and Manganese Removal
- Advanced Oxidation
- Disinfection

25 **Conventional Water Treatment, Best Practices & Issues**

AWWA CA-NV
8.0 Contact Hours
0.8 CEUs

This training will look at the operation of the most common types of water treatment plants. It will compare and contrast a direct filtration plant with a conventional plant. The session will look at choices, issues and options when considering moving to membrane technology. The session will look at basic regulations, operations, and best practices. It will look at limiting disinfection byproducts and creating water that is suitable to go into the distribution system.

26 **Basic Electrical Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course will cover an overview of working on electrical equipment or equipment powered by electricity in the drinking water industry. The topics to be discussed are risks and prevention, electricity and physics basics, arc flash safety, and response to electric fires/burns/shock, and safe workplace practices.

27 **Vehicle Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course will cover risks, precautions, and proper operation of vehicles in the drinking water industry. Majority of the course reviews topics of distracted driving and practical, everyday vehicle checks before going out into the field. This course will also include discussion of trailer towing, boat safety, and heavy equipment safety.

28 **Traffic and Work Zone Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course discusses importance of safety while working within roadways. In the drinking water industry, working in roadways is a daily occurrence whether scheduled or emergency situations. The topics in this course include equipment required, setting up signage and cones, the 4 different sections of a traffic work zone, flagging, and where to find the rules and regulations.

29 **Pump Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course discusses safety considerations when working with pumps. Pumps of all sizes and powers are used throughout the distribution system so it is necessary that a water operator has a solid sense of how to safely work around and with these machines. The topics to be discussed are basic pump electrical safety, moving parts, anatomy of a pump, storage of lubricants and fuels, and precautionary practices.

30 **Lock Out/Tag Out 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

One of the main safety practices in the trades industries that use powered equipment is the concept of lock out, tag out or LOTO. This course will discuss an overview of LOTO and its application in the drinking water industry with relation to energy sources and types of LOTO devices. This course will also include discussion on application of LOTO in a group as an employee.

31 **Water Sampling Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This safety course is specific to drinking water sampling. Samples in this industry are taken from a variety of locations so considerations must be taken such as entering private property, remote locations, and proper communication with sampling site owners. This course also discusses safety when parking vehicles, handling of glass containers, and precautions with samples containing hazardous preservatives.

32 **Fundamentals of Excavation, Trenching and Pipe Safety Refresher 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course discusses the fundamentals of excavation, trenching, and pipe safety in the drinking water industry. Topics to be discussed are proper PPE, cave-in protection, OSHA requirements, and considerations working with hand tools.

33 **First Aid for Burns 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course discusses thermal, electrical, and chemical burns that can happen in the drinking water industry and the appropriate kind of first aid that should be applied by an operator. This course will also discuss first aid equipment required and some precautionary steps that can be taken to prevent all types of burns in the workplace.

34 **Safety Around Wells 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course discusses safety around wells concerning the operator and protecting the environment/groundwater. Topics in the course include handling well chemicals, sanitary seals, sanitary surveys, and source water protection.

35 **Fire Extinguisher Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course is an overview of fire extinguisher classification, proper usage, and maintenance. Fire extinguishers are used to combat fires created by flammable materials and/or fed by the numerous types of oxidizers used in the water utility industry.

36 **Chemical Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course is a basic overview of chemical identification, handling and precautions. With the wide variety of chemicals used in the water industry, knowing where to find and how to use an MSDS is critical to safely handling chemicals. This course also discusses chemistry vocabulary that will indicate different warnings and dangers in the workplace.

37 **Chlorine Handling and Safety 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course is an overview of safety surrounding chlorine compounds: liquid chlorine, sodium hypochlorite, and calcium hypochlorite. Used in every water utility, chlorine is a strong oxidizer and can present hazards that most operators may not be aware of, especially having to handle chlorine on a regular basis. Topics in this course include hazards, NIOSH-set regulations, practical habits when handling chlorine, PPE, and handling emergencies.

38 **Confined Space Safety Refresher 2023**

HRWA
3.0 Contact Hours
0.3 CEUs

This course is a review of confined space safety requirements. In the water industry, wells, treatment plants, pump stations, and many other locations along the distribution system can present a confined space work zone. This course discusses the considerations necessary to create a safe working environment for the entrant.

39 **Noise Exposure 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course discusses the safety considerations necessary for workplace noise exposure. There are many high-volume producing equipment in the water industry. Even the low, but constant volume noises in the workplace present a hazard to the operator. This course will discuss identification of these hazards, prevention, and proper PPE.

40 **Working in Hot Conditions 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course discusses heat illness prevention in the water industry workplace. Topics for this course include appropriate PPE, symptom and hazardous environment identification, and precautionary steps that are vital to prevent heat stroke for water utility workers.

41 **PPE 2023**

HRWA
1.0 Contact Hours
0.1 CEUs

This course is an overview of all the PPE that a water industry operator uses or may have to use in their workplaces. This course also discusses importance of proper fitting/wearing of PPE for optimal protection and appropriate PPE for different workplace environments.

Correspondence/Online Courses

42 **Water Supply Operations and Non-Revenue Water**

AWWA eLearning
2.0 Contact Hours
0.2 CEUs

This course introduces the topic of non-revenue water which occurs in all water utilities to some degree. Water often leaks from primary suppl infrastructure and never reaches customers. Such failures and data lapses are explained as sources of non-revenue water which have multiple negative impacts to utility operations and finances as well as disruption to reliable customer service.

43 **Water Supplies & Demand Management**

AWWA eLearning
5.0 Contact Hours
0.5 CEUs

This course describes various surface and groundwater sources, the limits for each, the methods to find them, and tools in water demand projections and demand management strategies.

44 **Pumps and Motors/O&M Pre Cert Training**

Nevada Rural Water Association
3.0 Contact Hours
0.3 CEUs

This course will focus on different types of pumps and their applications as well as their uses and information regarding key components and operating characteristics. The second part of this course will introduce operations and maintenance of water systems including system monitoring program, distribution facilities, field disinfection, and cross-connections.

45 **D1/D2 Exam Preparation and Math Refresher**

Nevada Rural Water Association
3.0 Contact Hours
0.3 CEUs

This course is designed to prepare the attendees for the responsibilities and duties associated with the D1/D2 grades as well as prepare for the certification examination. This course will also introduce the basic formulas used in a water distribution system.

46 **D3/D4 Exam Preparation and Intermediate Math**

Nevada Rural Water Association
3.0 Contact Hours
0.3 CEUs

The Distribution Exam prep course is designed to prepare the attendees for the responsibilities and duties associated with the D3 and D4 grades and the certification examination. Supervisory responsibilities and situations are included as well as advanced knowledge of math skills. This course reviews the basic formulas used in a water distribution system. As well, the novice operator and journeyman level will find this course useful as a refresher and pre-exam tune-up for the math skills required for the Distribution examination.

47 **Source Water and Geology/Water Treatment Operations**

Nevada Rural Water Association
3.0 Contact Hours
0.3 CEUs

This course brings an understanding of the geology makeup of the state of Nevada and how the basin and ranges were formed through the different eras and activities that were at work in the early eras. The source of water is identified and explained. The differences between surface water and groundwater and different types of aquifers and basins are also explained. The course also provides an in depth look at the various processes involved in the treatment of water including the main treatment options, their characteristics and components required.

48 **Networking/Pumps and Motors/Storage Facilities, Pipe Conveyances and Hydrants/Facility Tour**

Nevada Rural Water Association
6.0 Contact Hours
0.35 CEUs

Topics included:

- Pumps and Motors
- Storage Facilities
- Pipe Conveyances
- Hydrants
- Tour of Western Nevada Supply Facility (no credit)
- Networking (no credit)

49 **Water Treatment: Disinfection - Part 2**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course

- from Water Treatment: Disinfection
- to Water Treatment: Disinfection - Part 2

50 **[ACR] Pumps & Pumping: Abnormal Operating Conditions**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course

- from [ACR] Abnormal Operating Conditions
- to [ACR] Pumps & Pumping: Abnormal Operating Conditions

51 **[ACR] Pumps & Pumping: Special Pumping Units**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course

- from [ACR] Special Pumping Units
- to [ACR] Pumps & Pumping: Special Pumping Units

52 **[ACR] Pumps & Pumping: Lineshaft Turbine Operating Conditions**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course

- from [ACR] Pumps - Lineshaft Turbine Operating Conditions
- to [ACR] Pumps & Pumping: Lineshaft Turbine Operating Conditions

53 **[ACR] Pumps & Pumping: Normal Operating Conditions**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course

- from [ACR] Pumps - Normal Operating Conditions
- to [ACR] Pumps & Pumping: Normal Operating Conditions

54 **[ACR] Pumps & Pumping: Pump Piping System**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Name change only on formerly approved course

- from [ACR] Pump Piping System
- to [ACR] Pumps & Pumping: Pump Piping System

55 **[ACR] Pumps & Pumping: Pump Hydraulics**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Name change only on formerly approved course

- from [ACR] Pump Hydraulics
- to [ACR] Pumps & Pumping: Pump Hydraulics

56 **[ACR] Pumps & Pumping: Selection & Replacement of Mechanical Seals**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Name change only on formerly approved course
- from [ACR] Selection & Replacement of Mechanical Seals
- to [ACR] Pumps & Pumping: Selection & Replacement of Mechanical Seals

57 **[ACR] Pumps & Pumping: Selection & Replacement of Pump Packing**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course
- from [ACR] Selection & Replacement of Pump Packing
- to [ACR] Pumps & Pumping: Selection & Replacement of Pump Packing

58 **[ACR] Pumps & Pumping: Centrifugal Pump Repair**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Name change only on formerly approved course
- from [ACR] Centrifugal Pump Repair
- to [ACR] Pumps & Pumping: Centrifugal Pump Repair

59 **[ACR] Pumps & Pumping: Centrifugal Pump Components**

WaterLMS
3.0 Contact Hours
0.3 CEUs

Name change only on formerly approved course
- from [ACR] Centrifugal Pump Components
- to [ACR] Pumps & Pumping: Centrifugal Pump Components

60 **[ACR] Pumps & Pumping: Centrifugal Pump Types**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course
- from [ACR] Centrifugal Pump Types
- to [ACR] Pumps & Pumping: Centrifugal Pump Types

61 **[ACR] Pumps & Pumping: Centrifugal Pump Classification & Theory**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Name change only on formerly approved course
- from [ACR] Centrifugal Pump Classification & Theory
- to [ACR] Pumps & Pumping: Centrifugal Pump Classification & Theory

62 **[ACR] Chlorine O&M: Disinfection**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Waterborne Diseases & Causes
- Methods of Disinfection

63 **[ACR] Chlorine O&M: Chemical Properties**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Chlorine Gas
- Hypochlorite/s Reactions with Water
- Chlorine and Nitrogen Compounds

64 **[ACR] Chlorine O&M: Reactions and Effects**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Control of Microorganism
- Chlorine Residual
- Application of Chlorine

65 **[ACR] Chlorine O&M: Gas Chlorine Stations**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Regulations
- Stations
- Cylinders

66 **[ACR] Chlorine O&M: Cylinders and Connections**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Cylinders and Connections
- Containers

67 **[ACR] Chlorine O&M: Gas Chlorinators O&M**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Basic Information
- Chlorinator Systems
- Gas Chlorinator Control Systems
- Troubleshooting

68 **[ACR] Chlorine O&M: Hypochlorinator O&M**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Disinfection Process
- Electrical System
- Normal Operation

69 **[ACR] Chlorine O&M: Safety**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Chlorine Safety Program
- Safety Equipment
- Transportation

70 **[ACR] Chlorine O&M: Monitoring**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Chlorine Residual
- Free Chlorine Residual - DPD Method

71 **[ACR] Chlorine O&M: Math**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Formulas
- Disinfection of New Lines

72 **[ACR] Distribution System: Introduction**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Maintenance

73 **[ACR] Distribution System: Piping**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Pipes
- Repairs

74 **[ACR] Distribution System: Valves**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Valve Components
- Valve Operations & Uses in Water Distribution System
- Valve Operations

75 **[ACR] Distribution System: Fire Hydrants**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Hydrant Types
- Operating Concerns

76 **[ACR] Distribution System: Storage**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Normal Operations
- Instrumentation

77 **[ACR] Distribution System: Booster Station**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Booster Station Operation & Efficiency
- Booster Station Problems

78 **[ACR] Distribution System: Service Connections**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Service Connections
- Residential Service Meters - Installations

79 **[ACR] Distribution System: Safety**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Safety Responsibilities
- Piping & Special Operations

80 **[ACR] Distribution System: Inspection**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Mapping
- Monitoring

81 **[ACR] Distribution System: Meters**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Distribution System Meters

82 **[ACR] Distribution System Construction: Pre-Construction Planning**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Planning Process
- Construction & Maintenance

83 **[ACR] Distribution System Construction: Implementing Construction Plans**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Implementing Construction Plans

84 **[ACR] Distribution System Construction: Blueprint Reading**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Blueprint Reading
- Interpretation of Blueprints

85 **[ACR] Distribution System Construction: Safety**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Safety
- Construction Site Considerations

86 **[ACR] Distribution System Construction: Traffic Control**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Goals of Traffic Control
- Traffic Control Planning
- Traffic Control Data

87 **[ACR] Distribution System Construction: Pipe Materials**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Pipe Materials

88 **[ACR] Distribution System Construction: Trenching Techniques**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Trenching in Distribution System
- Trenching

89 **[ACR] Distribution System Construction: Cave In Protection Shoring**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Shoring
- Testing

90 **[ACR] Distribution System Construction: Pipe Laying**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Ductile Cast Iron Pipe
- Mechanical Joints

91 **[ACR] Distribution System Construction: Hydrants Valves Appurtenance**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Materials
- Installation Procedures
- Customer Service

92 **[ACR] Distribution System Construction: Thrust Blocks**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Counter Force with Thrust Blocks
- Thrust Block Size & Components

93 **[ACR] Distribution System Construction: Corrosion Control**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Corrosion Types
- Corrosion Protection

94 **[ACR] Distribution System Construction: Bedding Backfill**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Bedding & Backfilling
- Backfill of Trench

95 **[ACR] Distribution System Construction: Testing Disinfection**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Disinfection & Testing
- Line Disinfection

96 **[ACR] Electrical: Atomic Theory**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Atomic Theory
- Resistance & Current

97 **[ACR] Electrical: Control Systems**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Control System
- Components

98 **[ACR] Electrical: Measurements**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- General Types of Measurements
- Using VOM Meters

99 **[ACR] Electrical: Circuits Basics**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Circuits
- Symbols & Terminology
- Series & Parallel Circuits

100 **[ACR] Electrical: Electromagnetism**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Electromagnetism
- Inductance
- Capacitance

101 **[ACR] Electrical: Normal Operations**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Safety
- Routine Maintenance

102 **[ACR] Electrical: Power Systems**

WaterLMS
3.0 Contact Hours
0.3 CEUs

Topics include:
- Power System
- Exterior Components

103 **[ACR] Electrical: Reading Electrical Diagrams**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Reading Electrical System Diagrams
- Electrical Circuits

104 **[ACR] Electrical: Troubleshooting Electrical Problems**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Troubleshooting Procedures
- Electric Motors

105 **[ACR] Fire Hydrants: History, Operations, and Inspections**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Historical Perspective
- Purpose and Types of Fire Hydrants
- Component Terminology

106 **[ACR] Fire Hydrants: Data Collection & Record Keeping**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Data Collection
- Record Keeping
- Installation

107 **[ACR] Fire Hydrants: Normal Maintenance Repair**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Normal Maintenance Repair

108 **[ACR] Hydraulics: The Basics**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Properties of Fluids
- Fluid Actions

109 **[ACR] Hydraulics: Liquids at Rest**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Static pressure in Water Hydraulic Systems
- Pascal's Law
- Forces Exerted by Liquids

110 **[ACR] Hydraulics: Flow in Closed Conduits**

WaterLMS
4.0 Contact Hours
0.4 CEUs

Topics include:
- Forces Created by Liquids
- Applications
- Calculations

111 **[ACR] Hydraulics: Pump Hydraulics**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Hydraulic Considerations of Pumping Systems
- Work & Horsepower
- Net Positive Suction Head

112 **[ACR] Hydraulics: Flow in Open Channels**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Open Channel Flow
- Flow Conditions
- Flow in Circular Conduits

113 **[ACR] Utility Management: Introduction**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:
- Water and Public Health
- Utility Management

114 **[ACR] Utility Management: Organizational Management**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:
- Local Governments
- Local Law Summary
- Administrative Activities

115 **[ACR] Utility Management: Planning Management**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Planning Activities
- Plans

116 **[ACR] Utility Management: Personnel Management**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- People
- Leadership

117 **[ACR] Utility Management: Utility Operation Management**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Maintenance
- Maintenance System

118 **[ACR] Utility Management: Utility Financial Management**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Utility Management Focus
- Budget Methods

119 **[ACR] Utility Management: Capacity Development Management**
WaterLMS
1.0 Contact Hours
0.1 CEUs
Topics include:
- Meeting Capacity Requirements

120 **[ACR] Water Sources: Hydrology**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Hydrology Introduction
- Wells & Springs

121 **[ACR] Water Sources: Surface Water Operations**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Surface Water Operations
- Operations Impacts in Watershed
- Water Storage Operations

122 **[ACR] Water Sources: Groundwater Operations**
WaterLMS
2.0 Contact Hours
0.2 CEUs
Topics include:
- Components & Impacts Associated with Groundwater Systems
- Finding Groundwater
- Groundwater System
- Groundwater Protection

123 **[ACR] Water Sources: Pumping Systems**

WaterLMS
2.0 Contact Hours
0.2 CEUs

Topics include:

- Pumping Systems
- System Valves
- Groundwater Pumping Systems

124 **[ACR] Water Sources: Transmission Lines**

WaterLMS
1.0 Contact Hours
0.1 CEUs

Topics include:

- Components
- Stations

125 **Predicting Contaminant Removal in Activated Carbon Systems**

AWWA eLearning
2.0 Contact Hours
0.2 CEUs

Topics include:

- Explain fundamentals of activated carbon adsorption
- Identify how different parameters affect adsorption
- Describe how databases, performance modeling and cost modeling work together
- Determine whether modeling may be helpful for you system
- Perform simple pore-surface diffusion model for an adsorption study

Mainland Courses

126 **2023 WaterPro Conference**

9/25-27/23
NRWA
9 Drinking Water Topics with full credit @ 1 hour each or 0.1 CEUs

Drinking Water Topics (1-hour full credit) include:

- Wildfire Impacts to Water Systems - Prevention and Response
- Considerations for Protecting our Water Infrastructure
- What is LoRaWAN A New Open Global Standard for Utilities and Cities
- Integrating GIS and Asset Management Systems
- Safety in the Workplace; Does Your Team Have a Plan
- Six Steps to Save Energy and Justify Your Next Capital Improvement Project with VFD Controlled Pumps
- Advanced Technology Helps Rural Water Utilities Build a More Sustainable Future
- How Cloud-Based SCADA Provides True System Redundancy
- Monitoring and Managing PFAS and Emerging Contaminant Treatment Barriers

127 **2024 Virtual Operator Conference**

2/6-8/24
Illinois State Water Survey and RCAP
12 Drinking Water Topics with full credit @ 1 hour each or 0.1 CEUs

Drinking Water Topics (1-hour full credit) include:

- Understanding the Lead and Copper Rule and Its New Revisions
- DBP Overview
- Consumer Confidence Reporting and Compliance Issues
- PFAS in Drinking Water
- Fire Hydrants, the Multi-Functioning Appurtenance
- GIS Mapping Applications with Hydrant Flushing, Valve Exercising, and Water Leaks
- Wellhead Protection Planning
- Emergency Response Planning - Lessons Learned
- Basic Math for Drinking Water Operators
- Board Relationships
- Boost Math Confidence with Practical Applications
- Examples of Smaller Scale Partnerships