DAVID Y. IGE
GOVERNOR OF HAWAII

ELIZABETH A. CHAR, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
SAFE DRINKING WATER BRANCH
ULUAKUPU BLDG. 4
2385 WAIMANO HOME ROAD, SUITE 110
PEARL CITY, HI 96782-1400

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

DATE: August 30, 2021

TIME: 10:00 a.m. to 10:30 a.m.

MEMBERS PRESENT: Glenn Ah Yat (2nd term expires 6/30/23)
Mark Prescott (2nd term expires 6/30/24)
Jodi Yamami (2nd term expires 6/30/24)
James Landgraf (1st term expires 6/30/25)

This meeting was conducted by video-teleconference in accordance with the Emergency Proclamation Related to the COVID-19 Response.

A. Call to Order

- The meeting began at 10:00 a.m.
- Three official members were present for a quorum.
- James Landgraf whose term began July 1, 2021 was also present in the virtual meeting, however for safety reasons, he did not travel to Oahu because of rising COVID case counts, so he was not able to have his Oath of Office administered. Therefore, he did not have voting authorization.

B. Old Business

- The Board unanimously approved the May 25, 2021 meeting minutes.

C. New Business

- DSO Certification Applications

  The Board unanimously approved the following applications for certification:

	Name	Grade Requested	Grade Approved
1	McCool, Anthony	1	1
2	Neaves, Adam	1	1

3	Niemann, Jace	1	1
4	Ogata, Michael	1	1
5	Tom, Kekoa	1	1
6	Bartlett, Sean	2	2
7	Christian, Kevin	2	2
8	Iwamoto, Kirk	4	4
9	Keakealani, Mahana	4	4
10	Miyata, Karli	4	4
11	Uehara, Kamalani	4	4
12	Rhodes, Stanley	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	Bitancor, Romel	OIT	OIT
2	Barroga, Mario	1	1
3	Melchor, Florendo	1	1
4	Perreira, Gary	1	1
5	Starkey, Nathan	1	1
6	Blackwelder, Donald	2	2
7	Oducado, Justin	2	2
8	Rhodes, Stanley	2 Reciprocity	1 Reciprocity
9	Arellano, Thomas	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	Cathodic Protection – Pipeline	7/9/21	BWS	0.15

	Design and Inspection			
2	Drinking Water Microbes 102	7/27/21	US EPA	0.1
3	18th Annual EPA Drinking Water Workshop – T1 Corrosion	8/30/21	US EPA	0.4
4	18th Annual EPA Drinking Water Workshop – T2 Introduction to EPANET	8/30/21	US EPA	0.4
5	18th Annual EPA Drinking Water Workshop – T3 Sanitary Surveys-Treatment	8/30/21	US EPA	0.2
6	18th Annual EPA Drinking Water Workshop – T4 Managing Legacy Manganese	8/30/21	US EPA	0.2
7	18th Annual EPA Drinking Water Workshop – 2A Pathogens	8/31/21	US EPA	0.175
8	18th Annual EPA Drinking Water Workshop – 2B Per- and Polyfluoroalkyl Substances	8/31/21	US EPA	0.175
9	18th Annual EPA Drinking Water Workshop – 3A Corrosion and Lead	8/31/21	US EPA	0.175
10	18th Annual EPA Drinking Water Workshop – 3B Source Water Quality and Quantity	8/31/21	US EPA	0.175
11	18th Annual EPA Drinking Water Workshop – 5A Disinfectants and Disinfection Byproducts	9/1/21	US EPA	0.175
12	18th Annual EPA Drinking Water Workshop – 5B Equity and Underserved Communities	9/1/21	US EPA	0.175
13	18th Annual EPA Drinking Water Workshop – 6A Resiliency and Emergency Response	9/1/21	US EPA	0.175
14	18th Annual EPA Drinking Water Workshop – 6B Contaminant Removal	9/1/21	US EPA	0.175

15	18th Annual EPA Drinking Water Workshop – 8A Monitoring and Risk Communication	9/2/21	US EPA	0.175
16	18th Annual EPA Drinking Water Workshop – 8B Implementing Innovative Treatments	9/2/21	US EPA	0.175
17	18th Annual EPA Drinking Water Workshop – 9A Distribution System Best Practices	9/2/21	US EPA	0.175
18	18th Annual EPA Drinking Water Workshop – 9B System Oversight	9/2/21	US EPA	0.175
19	Controlling Lead in Drinking Water	9/21/21	AWWA Hi / RCAC	0.2
20	Distribution System Infrastructure and Water Quality	9/28/21	AWWA Hi / RCAC	0.2
21	Coliform Sample Collection	9/30/21	AWWA Hi / RCAC	0.2
22	Cross Connection Control and Backflow Prevention	10/19/21	RCAC	0.2
23	Implementing a Cross Connection Control Program	10/21/21	RCAC	0.2
24	Introduction to Cybersecurity	Various	US EPA	0.7
25	Cybersecurity in the Water Sector	Various	AWWA eLearning	0.2
26	Emergency Planning	Various	AWWA eLearning	0.2
27	Regulatory Review	Various	AWWA eLearning	0.1
28	Financial Sustainability for Small Systems	Various	AWWA eLearning	none
29	Water Distribution System Basics	Various	RCAC	0.2
30	Water Distribution Math Basics	Various	RCAC	0.2
31	2021 Short Courses – Water Treatment	6/7-11/21	AWWA Chesa-peake Section	2.4

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 from May 16, 2021 thru August 14, 2021. Computer-based exams were given on Oahu and Maui. Paper-based exams were given on Molokai, Kauai, Lanai, and the Big Island. Seven out of 24 operators passed for an overall passing rate of 29%.

	Examinee	Grade	Certification
1	Gibson, Steven	1	D1-508
2	Ownsbey, Reese	1	D1-510
3	Yamamura, Kurt	1	D1-509
4	Besmer, Zachary	2	None
5	Bush, Cody	2	None
6	Crutchfield, Michael	2	D2-312
7	Fuchigami, Jacob	2	None
8	Horner, Darren	2	None
9	Mendes, Zachary-Scott	2	None
10	Mollena, Joseph	2	None
11	Rita, Selwyn	2	None
12	Shigematsu, Tyrus	2	None
13	Yoshioka, Wiley	2	None
14	Agtarap, Elmer	3	None
15	Belanio, Rory	3	None
16	Humphrey, Kevin	3	D3-159
17	Iwai, Franklin	3	None
18	Naungayan, Darroll	3	None
19	Silva, Jeffery	3	None
20	Bowman, John	4	D4-289
21	Morris, Timothy	4	D4-288
22	Pascua, Joseph	4	None
23	Paulino, Alfred	4	None
24	Tajiri, Blaine	4	None

DSO Exam Results

Grade	Passed	Examinees	Passing Rate
DSO 1	3	3	100%
DSO 2	1	10	10%
DSO 3	1	6	17%
DSO 4	2	5	40%
Total	7	24	29%

- WTPO Certification Exam Results

  The Board was notified of the following results of the WTPO certification exam administered from May 16, 2021 thru August 14, 2021. Computer-based exams were given on Oahu and Maui. Paper-based exams were given on Molokai, Kauai, Lanai, and the Big Island. Three out of 4 operators passed for an overall passing rate of 75%.

	Examinee	Grade	Certification
1	Bamsey, Duncan	2	T2-238
2	Murashige, Keiven	2	T2-239
3	Hooks, Ash	4	T4-137
4	Mukai, Miki	4	None

WTPO Exam Results

Grade	Passed	Examinees	Passing Rate
WTPO 1	-	-	-
WTPO 2	2	2	100%
WTPO 3	-	-	-
WTPO 4	1	2	50%
Total	3	4	75%

D. Announcements

- The next board meeting is scheduled for November 23, 2021.

E. Adjournment

- The meeting adjourned at 10:30 a.m.

Respectfully Submitted,

Jodi Yamami

Jodi Yamami
Board of Certification of
Public Water System Operators

JY:sa

c: Anna Yen, U.S. EPA Region IX [via yen.anna@epa.gov only]
Adam Ramos, U.S. EPA Region IX [via ramos.adam@epa.gov only]
Glenn Ah Yat, Board Member [via gahyat@hbws.org only]
James Landgraf, Board Member [via jlandgraf@hawaiiantel.net only]
Guy Moriguchi, Board Member [via guy@aquaengineers.com only]
Mark Prescott, Board Member [via mprescott90@gmail.com only]

ATTACHMENT 1
DSO DECISIONS
8-30-2021

1 **McCool, Anthony K. Grade 1** **Approve Grade 1**

314 St. Stephen's Diocesan Center
Supervisor Wilder Parker
Water Treatment Operator
1 yr/3 mos

Check chlorine residuals weekly as well as the meter readings, bacti sample every month, make sure the equipment has an adequate level of fluid, housekeeping around site and make sure the eye wash/shower is operable

2 **Neaves, Adam C. Grade 1** **Approve Grade 1**

437 Moloaa Irrigation Cooperative
Supervisor Louisa Wooton
Operator
1 yr/2 mos

System operations, collect and log daily chlorine residual, monthly routine sampling, deliver samples to laboratory, operate pipe location equipment, leak detection

3 **Niemann, Jace R. Grade 1** **Approve Grade 1**

249 Kahakuloa
Supervisor Kevin Baughman
Water System Operator
4 yrs

Performs regular checks including regular chlorine residuals, check tank levels and system pressure, respond to emergency calls, repair system leaks, routine repairs, replace booster pumps

4 **Ogata, Michael J. Grade 1** **Approve Grade 1**

249 Kahakuloa
Supervisor Zach Wheatley
Water Operator
1 yr/10 mos

Checking standpipes free chlorine ppm, reading water meters using the Orion Badger RFI system, running pumps at a booster station to fill 100k tank, overseeing any major repairs that require a contractor to be present, effecting any small repairs to chlorine pumps or lines that run chlorine to injection points, refilling chlorine day tanks, monitoring water usage for the subdivision, clearing overgrowth from around any areas that see regular use (pump stations, well house, etc.) and recording data provided by the HMI's of the pump stations and well house

5 **Tom, Kekoa Grade 1** **Approve Grade 1**

212 Wailuku
Supervisor Cullen Falces
Pipefitter
3 yrs/3 mos

Fix broken main lines, service lines, and standpipe lines, install new meters, bypass lines, and jumper lines, repair leaks with clamp or section the lines

6 **Bartlett, Sean D. Grade 2** **Approve Grade 2**

135 Waikoloa
Supervisor Stephen Green
Utility Operator
2 yrs

Install and repair fire hydrants, install and repair water meters, chlorine residual readings, mainline and lateral pipe repairs, meter testing, rebuild/adjust PRVs, chlorination feed pump maintenance, transport/refill chlorine tanks/drums

- DSO Grade 1 and WTPO Grade 1 certified

ATTACHMENT 1
DSO DECISIONS
8-30-2021

7	**Christian, Kevin K. Grade 2** 428 Princeville Supervisor Leila Kamakele Operator 7 yrs/10 mos	**Approve Grade 2** Read water meters, install water meters, check well sites, record runtimes, check chlorine residual, flush fire hydrants, replace fire hydrants, repair service and main lines, exercise valves
8	**Iwamoto, Kirk N. Grade 4** 331 Honolulu-Windward-Pearl Harbor Supervisor Ron Fenstemacher Chemist 18 yrs	**Approve Grade 4** Compliance water sampling, analyzing tap water for EPA compliance projects such as the Lead and Copper Rule to determine how corrosive the water is, EPA certified for metals analysis and perform analyses in a compliance fashion, field customer calls to answer questions about drinking water regulations and MCLs, direct flushing of system if customer complains of dirty water and it is needeed, plan EPD sites, sample at sources and interpret results and make conclusions on water quality, monitor water from GAC in pH and turbidity and direct when it can be discharged to storm drain
9	**Keakealani, Mahana M. Grade 4** 164 Kawaihae Supervisor Travis Gomes Technician 1 yr	**Approve Grade 4** Tank maintenance and level checks, pump O&M and troubleshooting, coordination with outside contractors if assistance is needed with O&M or troubleshooting, SCADA, backflow testing, chlorine residual testing, pressure testing, meter reads, pumped vs usage data compilation, leak detection, new service connections (meter and backflow installs), valve location and exercising, assist with mock sanitary survey and system walk through • DSO Grade 3 certified
	150 Napuu Supervisor Sally Rice Coodinator 8 mos	Collection and monitoring of pumping rates and pressures, collect data and consulted with engineers to coordinate any work, performed daily rounds for chlorine residual, well and booster production, assisted with equipment troubleshooting such as chlorine pumps, deep well pump, electrical apparatus, coordinated emergency by-pass & tank replacement, responded to water line breaks, low pressure, chlorine odor complaints
	City of Jerome Supervisor Larry Bybee Waterworks Coodinator 1 yr/4 mos	QA/QC and oversight of meter reading and meter repair staff, performed quality assessment analysis and maintained production sales records, consulted with water supervisor regarding pumping rates, collected data and analyzed performance of pressure reducing equipment, performed daily rounds for reading production meters, recording system pressure values, determining chemical usages, bacteriological sampling, chlorine residual monitoring
	City of Jerome Supervisor Angie Baker Utility Clerk 1 yr/2 mos	50% (7 months) - customer billing, customer complaints 50% (7 months) - QA/QC over meter reading and reading imports, route loading, meter turn offs and ons, assisted with system pressure tests and analyzing data, well production data monitoring and unaccounted water

generation, troubleshooting meter issues or source production issues, troubleshooting with meter equipment and software

150 Napuu
Supervisor Sally Rice
Coordinator
10 mos

Collection and monitoring of pumping rates and pressures, collect data and consulted with engineers to coordinate any work, performed daily rounds for chlorine residual, well and booster production, assisted with equipment troubleshooting such as chlorine pumps, deep well pump, electrical apparatus, coordinated deep well pumps replacement, responded to water line breaks, low pressure, chlorine odor complaints, created operator log and equipment maintenance log program

10 **Miyata, Karli Grade 4** **Approve Grade 4**

355 Barbers Point
Supervisor Ian Ichimura
Engineer
4 yrs

Assists techs in the field, provide technical guidance to operators related to water systems and treatment plants at Kalaeloa, assist with installation, replacement and O&M of the equipment such as dry well pumps and motors, meters, valves, chlorine pumps, analyzers, storage tanks, and SCADA, tests for water quality, assists with maintenance and repairs of fire hydrants

- DSO Grade 2 certified

11 **Uehara, Kamalani T. Grade 4** **Approve Grade 4**

212 Wailuku
Supervisor Leonore Amano
Microbiologist
4 yrs/2 mos

Distribution system, source, and treatment plant water sample collection, process microbiological analyses on water samples (total coliform, E. coli detection), process chemical analyses on water samples (residual chlorine, temperature, pH, turbidity, conductivity, anion detection), analyses determine water quality and suitability for drinking water at varying stages, laboratory maintenance and quality control of supplies, processes, and data

- DSO Grade 2 certified

12 **Rhodes, Stanley D. Grade 4 Reciprocity** **Approve Grade 4 Reciprocity**

Contra Costa Water District
Supervisor Doug Beckstrand
Water Quality Inspector
11 yrs

Disinfection of water mains, make calculations to determine chemical dosages, control water flow through the system, flush water mains, operate and maintain pumps motors, valves, and mixers, place storage facilities in and out of service, maintain and repair online chlorine analyzers, collect and analyze water samples, assist in main installation

- Current California Water Distribution Operator Grade D5 #41008 expires 11/1/2022
- California Water Distribution Operator Grade D5 is the highest out of 5 water distribution certifications
- California Water Distribution Operator Grade D5 requires
  - High school diploma
  - Completion of specified training courses
  - 5 years of qualified experience
  - Passing of a Grade D5 treatment exam
- California prepares its own treatment exam

ATTACHMENT 2
WTPO DECISIONS
8-30-2021

1 **Bitancor, Romel F. OIT** — **Approve OIT**

146 Hawaii Volcanoes National Park
Chlorination, Cartridge Filtration
Supervisor Danial Drake
4 yrs

Change and clean roughing filters, take chlorine, PO, NTU, pH readings and log readings, check pressure gages, water flow records, read rain gauges, pond basin levels, water temperature

- Works under certified operator Danial Drake
- Employed by PWS 146 Hawaii Volcanoes National Park

2 **Barroga, Mario G. Grade 1** — **Approve Grade 1**

266 Baldwin Ranch Estates
GAC, Ion Exchange, Chlorination
Supervisor Jamie Cardoza
3 yrs/5 mos

Inspection and data log for GAC filter tank pressure gauges and brine tank level sensor, ion exchange system inspections and filtration differential pressure gauges, electroconductivity readings, nitrate treating readings, stand-by generator inspections, SCADA logging, and evaporation basin inspection

- DSO Grade 1 certified

3 **Melchor, Florendo B. Grade 1** — **Approve Grade 1**

400 Lihue Kapaa
Chlorination, pH Control
Supervisor Ryan Smith
1 yr/7 mos

Assist with soda ash, chlorination, maintenance and repairs/replacement of equipment (hypo & soda ash pumps, solenoid valves, cla-vales), check and monitor SCADA systems

- DSO Grade 1 certified

4 **Perreira, Gary A. Jr. Grade 1** — **Approve Grade 1**

212 Wailuku
Chlorination, GAC
Supervisor Wayne Fujiwara
2 yrs/5 mos

Collaborate in the installation, maintenance, overhaul, testing, and repair of plant operations water systems equipment including deepwell turbine pumps and electrical motors, horizontal centrifugal pumps and electric motors, GAC filters, automatic butterfly and water valves, chlorinators, flow sensors and meter, pressure gauges, and piping systems, overhaul and repair pump shaft sleeves and seals, add or replace packing, calibrate valves, overhaul, repair and calibrate disinfection equipment including pumps injectors and skids

5 **Starkey, Nathan K. Grade 1** — **Approve Grade 1**

248 Kawela Plantation
Chlorination
Supervisor Juanita Colon
2 yrs

Repair all pipes, testing and disinfection of water mains, routinely flush and clean water mains, chlorinate new service line, adjusting liquid chlorine to service lines, run pumps and chlorinator

- DSO Grade 2 certified

6 **Blackwelder, Donald E. Grade 2** — **Approve Grade 2**

214 Lahaina
Direct Filtration, Microfiltration
WTPO Trainee
Supervisor Jason Koskey
2 yrs

Monitor CL2 and chemical additives for adjustments needed because of changing conditions in the raw intake, monitor and record pump run times, water intake and equipment, inspect pumps, generators and compressors for proper operation, repair membranes, replace pumps, and damaged valves, perform and assist with maintenance washes and CIP to maintain integrity of filter systems, perform backwashes on membranes and sand filters, perform labs daily (turbidity, pH, chlorine, temperature and color)

ATTACHMENT 2
WTPO DECISIONS
8-30-2021

7 **Oducado, Justin Grade 2** **Approve Grade 2**

348 Waiawa Correctional Facility
Membrane Filtration
Supervisor Roy Shull
3 yrs/7mos

Monitor and maintain treatment plant, troubleshoot/repair pumps, compressors and motors, perform startups and shutdowns, perform daily readings and update logs, assist with upgrade of treatment plant, check tank levels, Memcor, and chlorine residual readings, assists with trouble calls

- DSO Grade 2 and WTPO Grade 1 certified

8 **Rhodes, Stanley D. Grade 2 Reciprocity** **Approve Grade 1 Reciprocity**

Contra Costa Water District
Conventional Treatment
Supervisor Doug Beckstrand
11 yrs

Supervise and direct duties at water treatment plants related to physical, chemical, and bacteriological analysis of water, set up and perform maintenance on analytical equipment, recognize problems in analytical procedures and recommend changes, collect samples for analysis, assist in planning and modifying sample collection programs for monitoring various treatment plant processes, perform lab analyses on samples and interpret results, treat water in reservoirs to prevent undesirable conditions such as nitrification of microbiological contamination, perform calculations to determine chemical dosages and feed rates for disinfection, operate chloramination pumping facilities

- Current California Water Treatment Operator Grade T3 #29898 expires 4/1/2022
- California Water Distribution Operator Grade T3 is the middle level out of 5 water treatment certifications
- California Water Treatment Operator Grade T3 requires
    - High school diploma
    - Completion of specified training courses
    - 2 years of qualified experience
    - Passing of a Grade T3 treatment exam
- California prepares its own treatment exam
- Applicant performs lab analyses and interprets results but does not direct and make adjustments to filtration water treatment plants based on results
- Applicant's disinfection dosage calculations qualifies him for Grade 1 only

9	**Arellano, Thomas J. Grade 4 Reciprocity**
	Olivenhain Municipal Water
	Direct Filtration
	Supervisor Geoff Fulks
	14 yrs
		Manage a 34 MGD zero liquid discharge submerged membrane ultrafiltration surface water treatment plant, as water operator performed laboratory water quality analysis for turbidity, pH, chlorine, ammonia, monochloramines, ionic charges, & total suspended solids, performed chemical cleaning, repairs, new installations and integrity testing of filtration membranes, start-up/shutdown plant, performed chemical dosing changes, maintained proper CTs, monitored membrane integrity testing, troubleshoot equipment
		• Current California Water Treatment Operator Grade T5 # 27297 expires 9/1/2022
		• California Water Treatment Operator Grade T5 is the highest out of 5 water treatment certifications
		• California Water Treatment Operator Grade T5 requires
		  ○ High school diploma
		  ○ Completion of specialized training courses
		  ○ 5 years of qualified experience
		  ○ Passing of a Grade T5 treatment exam
			Approve Grade 4 Reciprocity

ATTACHMENT 3
CEU DECISIONS
8-30-2021

Hawaii Courses

1 **Cathodic Protection – Pipeline Design and Inspection**

7/9/21
BWS
1.5 Contact Hours
0.15 CEUs

Topics included:

- Corrosion 101/Bonded Coatings
- Corrosion Protection Design
- Required Information for Design
- Design Considerations
- Design Calculations
- Test Station Locations
- Foreign Utilities
- Submittal Reviews
- Construction Observation
- Final System Testing for Compliance

2 **Drinking Water Microbes 102**

7/27/21
US EPA
1.0 Contact Hours
0.1 CEUs

This presentation provides an overview of the method review and approval processes of the federal drinking water regulatory program. This presentation will also explain how microbiologists use certain laboratory techniques to enumerate and study bacteria in drinking water. The presentation will delve into how the water matrix, sample collection, and laboratory processing can impact the bacterial counts.

3 **18th Annual EPA Drinking Water Workshop - T1 Corrosion**

8/30/21
US EPA
4.0 Contact Hours
0.4 CEUs

This training will cover the fundamentals of lead and copper release including corrosion, the role of particles, and metal solubility relationships in drinking water. Distribution system assessment approaches, including water sampling strategies and pipe scale analyses, will also be addressed. Lastly, corrosion control strategies and corrosion control assessment tools will be presented. Cases study data will be used to illustrate important messages where appropriate.

4 **18th Annual EPA Drinking Water Workshop - T2 Introduction to EPANET**

8/30/21
US EPA
4.0 Contact Hours
0.4 CEUs

This training will be structed as two parts: Part 1 will provide an overview and introduction to EPANET and Part 2 will provide four example EPANET applications that participants can follow to get familiar with and use EPANET. The four applications will be in the form of exercises and will include (1) building an EPANET model, (2) performing a hydraulic simulation using demand dependent and pressure dependent demands, (3) performing a water age analysis, and (4) performing a water quality chlorine analysis.

5 **18th Annual EPA Drinking Water Workshop - T3 Sanitary Surveys-Treatment**

8/30/21
US EPA
2.0 Contact Hours
0.2 CEUs

This training will provide information for state and federal public water system oversight personnel on evaluating water treatment processes as part of sanitary surveys or technical assistance for public water systems.

6 **18th Annual EPA Drinking Water Workshop - T4 Managing Legacy Manganese**

8/30/21
US EPA
2.0 Contact Hours
0.2 CEUs

This session will help small utilities identify problems related to legacy manganese (Mn) and manage their impacts. Training goals: (1) appreciation of regulatory, public health, and aesthetic issues associated with legacy Mn; (2) identify important characteristics of legacy Mn; (3) observe a demonstration of lab techniques that can be used to measure total and dissolved Mn; (4) understand how a utility developed a distribution system monitoring program for legacy Mn; and (5) be familiar with the demonstrated effectiveness of techniques for trying to remove legacy Mn.

7 **18th Annual EPA Drinking Water Workshop – 2A Pathogens**

8/31/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Prevention and Control of Legionnaires' Disease in the Aftermath of a Severe Outbreak
- Differences in the Inactivation of Legionella Pneumophila Serogroups Using Ultraviolet-C LED Technology in Drinking Water
- Using Economic Optimization to Derive Site-Specific Treatment Objectives

8 **18th Annual EPA Drinking Water Workshop – 2B Per- and Polyfluoroalkyl Substances**

8/31/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Occurrence of PFAS in New York State Small Water Systems Using EPA Method 533
- Collaborative Pilot-Scale Evaluation of Granular Activated Carbon and Ion Exchange Medias for Removal of PFAS from Groundwater
- PFAS in Minnesota

9 **18th Annual EPA Drinking Water Workshop – 3A Corrosion and Lead**

8/31/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Lead in Drinking Water in Schools and Childcare Facilities
- Experiences with Michigan's New Lead and Copper Rule
- Corrosion Control Evaluation Considerations with Change in Source and Treatment

10 **18th Annual EPA Drinking Water Workshop – 3B Source Water Quality and Quantity**

8/31/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- DWMAPS A Tool for Source Water Protection
- Managing Harmful Algal Blooms Based on Total Maximum Daily Load Models
- Eyes in the Sky Monitor Cyanobacterial Blooms at Source Waters

11 **18th Annual EPA Drinking Water Workshop – 5A Disinfectants and Disinfection Byproducts**

9/1/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Regulated DBP Formation and Prediction for Long Residence Times
- DBP Compliance Assistance Training: Lessons Learned from Oklahoma Pilot
- Changes in HAA Occurrence vs Disinfectant Types and Treatment Process from DBP Information Collection Request (ICR) to Unregulated Contaminant Monitoring Rule (UCMR) 4

12 **18th Annual EPA Drinking Water Workshop – 5B Equity and Underserved Communities**

9/1/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- All Rise for Safe Water Study of Drinking Water Violations in Manufactured or Mobile Home Communities
- Water Equity and Safe Drinking Water Act Compliance
- How the Drinking Water State Revolving Fund Can Target Funding to Disadvantaged Communities

13 **18th Annual EPA Drinking Water Workshop – 6A Resiliency and Emergency Response**

9/1/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Water Infrastructure Strategies to Support Community Resilience
- Supply Chain Resiliency
- Building Resilience to Extreme Events and Water Hazard Planning in Rural Communities

14 **18th Annual EPA Drinking Water Workshop – 6B Contaminant Removal**

9/1/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Case Studies of Point-of-Use or Point-of-Entry for Safe Drinking Water Act Compliance
- Comparing the Triple Bottom Line of Centralized Water System Improvements to POU/POE
- Using POU for Safe Drinking Water Act Compliance

15 **18th Annual EPA Drinking Water Workshop – 8A Monitoring and Risk Communication**

9/2/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Unregulated Contaminant Monitoring Rule: Summary of UCMR 4 Data and an Overview of UCMR 5 Proposal
- Using State Managed Data to Assess UCMR 4's National Representation of DBP and Manganese Occurrence
- Simple and Effective Water Communication Strategies: Support for Utilities to Improve the Quality and Accessibility of Consumer Confidence Reports

16 **18th Annual EPA Drinking Water Workshop – 8B Implementing Innovative Treatments**

9/2/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Closing the Digital Divide: Challenges and Solutions for Small Systems
- Sulfur-Assisted Biological Removal of Nitrate
- UV-C LED Application in Disinfection of Microbial Pathogens in Water

17 **18th Annual EPA Drinking Water Workshop – 9A Distribution System Best Practices**

9/2/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Nitrification in Distribution Systems: Effects, triggers, Monitoring, and Corrective Methods
- Help for Solving Your Hydraulic Problems
- Preventing Pathogen Contamination: Disinfection, Tanks, and Cross Connections

18 **18th Annual EPA Drinking Water Workshop – 9B System Oversight**

9/2/21
US EPA
1.75 Contact Hours
0.175 CEUs

Topics included:

- Indian Health Service Sanitary Surveys: A Tool to Collate Data and Educate Stakeholders
- Using Sanitary Survey Findings to Identify Risk Management Challenges
- California Drinking Water Needs Assessment Experience

19 **Controlling Lead in Drinking Water**

9/21/21
AWWA Hi/RCAC
2.0 Contact Hours
0.2 CEUs

This workshop provides an overview of the requirements for addressing lead and copper in drinking water, aimed specifically at small water systems. Topics covered in the workshop include the regulations, corrosion basics, conducting an inventory, monitoring requirements, treatment requirements, public notification requirements and lead service line replacement.

20 **Distribution System Infrastructure and Water Quality**

9/28/21
AWWA Hi/RCAC
2.0 Contact Hours
0.2 CEUs

This lesson shows how infrastructure impacts water quality and provides solutions to common problems. This lesson also presents the water quality changes that may occur as the water moves through the infrastructure in the distribution system. Different water quality parameters and challenges are discussed along with solutions.

21 **Coliform Sample Collection**

9/30/21
AWWA Hi/RCAC
2.0 Contact Hours
0.2 CEUs

This lesson focuses on sample collection for TCR, even though the best practices mentioned here apply to sampling for other parameters as well. Several types of samples can be collected for total coliforms. These include routine samples, repeat samples, additional routine samples, replacement samples, and special samples. Only routine samples and repeat samples are discussed in this lesson.

22 **Cross Connection Control and Backflow Prevention**

10/19/21
RCAC
2.0 Contact Hours
0.2 CEUs

This session includes: an introduction to Cross Connection Control Programs, an overview of the concepts of backpressure and back siphonage, cross connection control devices and prevention, testing of devices, and conducting cross connection inspections.

23 **Implementing a Cross Connection Control Program**

10/21/21
RCAC
2.0 Contact Hours
0.2 CEUs

This session includes: a step-by-step walk through of the components of a Cross Connection Control Program including authorities, policies and ordinances; accepting cross connection control assemblies, conducting surveys for cross connections in the system, installing backflow prevention, training personnel to improve knowledge about cross connection program implementation, enforcement, and recordkeeping.

Repeating Courses

24 **Introduction to Cybersecurity**

US EPA
7.0 Contact Hours
0.7 CEUs

Topics include:

- Threat Overview
- Cybersecurity Drivers and Resources
- Cybersecurity Best Practices
- Cybersecurity and Infrastructure Security Agency
- Cybersecurity Response Exercises
- Cybersecurity Incident Response
- Cybersecurity Resources

Correspondence/Online Courses

25 **Cybersecurity in the Water Sector**

AWWA eLearning
2 contact hours
0.2 CEUs

This course is designed to teach participants how to use the AWWA Water Sector Cybersecurity Risk Management Tool. The workshop focuses on cybersecurity landscape, the self-assessment questionnaire and the controls in the Tool. There will be a demonstration of how to use the Tol to identify recommended controls and potential gaps that can be included in a utility's cybersecurity improvement plan.

26 **Emergency Planning**

AWWA eLearning
2 contact hours
0.2 CEUs

This course provides an overview of emergency preparedness, response planning, ANSI/AWWA G440 Emergency Preparedness Practices and M19 Emergency Planning for Water and Wastewater Utilities. This course will equip utilities to apply the content of the standards to develop an emergency preparedness program to improve resiliency while reducing risk.

27 **Regulatory Review**

AWWA eLearning
1 contact hour
0.1 CEUs

This course covers drinking water regulations and equips operators to properly operate and maintain water treatment facilities and distribution system, thereby protecting public health.

28 **Financial Sustainability for Small Systems**

AWWA eLearning
2 contact hours
None

This course focuses on 3 areas needed by small systems to achieve financial sustainability, including understanding enterprise funds and their revenues, and an overview of what is needed to protect public health through safe water.

- No credit for content geared for owners, board members

29 **Water Distribution System Basics**

RCAC
2 contact hours
0.2 CEUs

This course will give a water distribution operator the information needed to organize plans to complete his mission to provide safe drinking water. The plan should involve prepared documents outlining the day-to-day tasks including simple maintenance tasks and protection of water system from contaminants required to meet this goal.

30 **Water Distribution Math Basics**

RCAC
2 contact hours
0.2 CEUs

This course will help operators in their ability to perform water math problems. This includes volume, pressure, chlorine dosage, and pipe velocity. This workshop will help the treatment operator master these formulas while utilizing a conversion sheet.

Mainland Courses

31 **2021 Short Courses – Water Treatment**

6/7-11/21
AWWA-Chesapeake Section
24 contact hours
2.4 CEUs

Topics included:

- Chlorination Technology
- Coagulation, Flocculation & Sedimentation
- Applied mathematics
- Basic Electricity & Troubleshooting
- Water Treatment Processes
- Water Examination Review
- Distribution Systems