Aqua Talk

A newsletter from the Safe Drinking Water Program

COLORADO
Department of Public Health & Environment

Drinking water community helps with Jamestown recovery

Volume 9, Issue 1
Winter 2015

By David Dani, local assistance unit

This is a story of resilience, partnerships and safe drinking water. It began when the historic flooding of September 2013 caused Little James Creek to become a roaring river, leaving a path of destruction through Jamestown. Many homes were damaged or

Photo by Jamestownco.org

destroyed, bridges and roads were washed out, the town virtually inaccessible, and the town's drinking water system decimated. The treatment plant was compromised and more than half of the distribution system destroyed. But the point of this story is not to focus on the destruction; there are plenty of those stories. The point is to celebrate how the drinking water community came together to help a fellow system in need.

(Continued on page 3)

Message from the Safe Drinking Water program manager

Thanks to our stakeholders

by Ron Falco, P.E., Safe Drinking Water Program manager

Thanks to all who contributed to our stakeholder process in support of adopting the federal revised total coliform rule (RTCR) plus Colorado initiatives. The regulatory proposal passed the Water Quality Control Commission via unanimous vote on Jan. 12, 2015. As you probably know, the key components of the rule include the following items.

1. RTCR - adopting the federal rule.
2. Storage tank rule regarding developing and implementing a written tank inspection plan.
3. Backflow prevention and cross connection control rule regarding developing and implementing a written cross control plan.
4. Minimum disinfectant residual rule requiring 0.2 mg/L chlorine throughout distribution.
5. Water haulers rule clarifying expectations for this subset of public drinking water systems.

These requirements become effective on a variety of dates between now and April 1, 2016. Please familiarize yourself with the new regulations.

As we developed these rules we formed workgroups for each key component listed above with between 12 and 35 volunteers from water systems. Each group met three to six times to develop draft regulatory language. The larger stakeholder community provided input on the entire package.

At the rulemaking hearing, Colorado Springs Utilities, Reliable Field Services (a water hauler) and the Colorado Water Utility Council testified in support of the proposed changes. They thanked program staff for their outreach and efforts to work with stakeholders. I believe the Water Quality Control Commission was very impressed by this teamwork. I wish to thank the entire team at the department that worked on this especially, Steve Scherma, Melissa Swerdlow, Julie Kreyche, Tyson Ingels, Jorge Delgado, Jennifer Robinett and our Attorney General Emily Jackson.

Next, we begin our implementation efforts. Teams with representatives from across the program will be working on specific policies, guidance, templates and procedures for each major element listed above. We have already made great progress on our cross connection control policy, with valuable input from stakeholders. As we move forward with implementation there will be more opportunity for stakeholders to help craft our specific approach regarding a variety of topics. Additionally, look for communications about training opportunities regarding these new rules.

The outcome of this rulemaking means that Colorado has now addressed all the major regulatory recommendations included in the Alamosa waterborne disease outbreak investigation report!

Thanks again!

Jamestown recovery

(Continued from page 1)

After the floodwaters receded, Jamestown used Colorado's Water and Wastewater Agency Response Network (CoWARN) to send out a call for help. They requested equipment and expertise to get their drinking water system back online. The response was immediate and tremendous! The City of Boulder Public Works, Eagle River Water and Sanitation District and

Photo by Jamestownco.org

Colorado Rural Water Association provided specialized equipment and personnel to assist with distribution system flushing, repairs, pressure testing and damage assessment. By late summer, a new water main and service line replacement were nearing completion and Jamestown could bring water to about half of its residents under a boil water advisory.

Photo by water quality control division field services staff

During the recovery efforts, the Red Cross and Salvation Army helped provide cisterns which allowed families to return to Jamestown and not rely on bottled water. The Town of Empire assisted with the rehabilitation of the treatment plant by providing filter media from their slow sand filters so Jamestown could reseed their filters and get them running again. Denver Water provided operators that helped with the final stages of storage tank cleaning and distribution system flushing activities. The town and their engineer worked closely with the Colorado Department of Public Health and Environment by sharing recovery plans and timelines along with the progress they were making toward delivering safe drinking water.

Thanks to the assistance provided by Colorado's drinking water community, on Oct. 31, 2014, Jamestown notified its residents that the boil advisory was lifted and the drinking water was once again safe. When asked about the successful recovery of their drinking water system, operator Jon Ashton said, "The rebuilding of Jamestown is a perfect example of a system that works! Thank you all."

Photo by Jamestownco.org

Colorado has its share of disasters, and the department is proud to say in its experience, drinking water and wastewater systems and organizations are more than eager to help another system in need.

More information on CoWARN can be found at www.cowarn.org.

CoWARN
Utilities Helping Utilities

Long-term surface water treatment: Round 2

Nicole Graziano, drinking water compliance assurance section

In 2006, the long-term enhanced surface water treatment rule was promulgated to reduce the risk of disease caused by cryptosporidium and other microorganisms by identifying the public water systems at the greatest risk for source water contamination. The rule applied to all public water systems that used surface water or ground water under the direct influence of surface water. Pursuant to Section 10 of Regulation 11, the *Colorado Primary Drinking Water Regulations*, systems were initially required to monitor their water sources over a two-year period for cryptosporidium to determine any treatment requirements starting in 2008.

	For systems that:	The supplier must begin the second round of source water monitoring no later than:
Schedule 1	Supply at least 100,000 people	April 2015
Schedule 2	Supply from 50,000 to 99,999 people	October 2015
Schedule 3	Supply from 10,000 to 49,999 people	October 2016
Schedule 4	Supply less than 10,000 people and only monitor for E. coli	October 2017
Schedule 4	Supply less than 10,000 people and only monitor for cryptosporid-ium	April 2019
Schedule 5	Are on a depart-ment-approved schedule	As approved by the department

While the first round of sampling has been completed, the regulations require that all systems must begin a second round of monitoring to determine if source water conditions have changed significantly**. Systems are required to conduct a second round of monitoring that meets the same requirements as the system's initial round of source water monitoring.** Systems serving less than 10,000 people must sample all surface water sources for cryptosporidium, E. coli, and turbidity at least monthly for 24 consecutive months. Systems serving more than 10,000 people must sample all surface water sources for E. coli at least once every two weeks for 12 consecutive months. Systems must submit a description of the sampling location(s) to the department no later than three months before the applicable second round of source water monitoring start date.

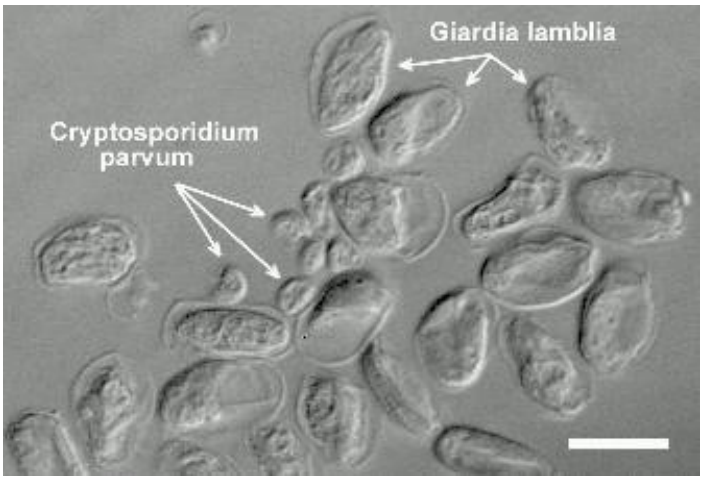


Photo Credit: H.D.A. Lindquist, U.S. EPA

Please note that instead of conducting source water monitoring, systems may choose to provide the maximum treatment required by the rule. More information about the rule can be found on Environmental Protection Agency's website at www.epa.gov/safewater/disinfection/lt2/regulations.html#prepub. Other questions can be directed to a system's compliance specialist, which can be located at https://www.colorado.gov/pacific/cdphe/dwcontact.

What's up with disinfection waivers?

Ron Falco, P.E., Safe Drinking Water program manager and Jennifer Robinett, compliance assurance section manager

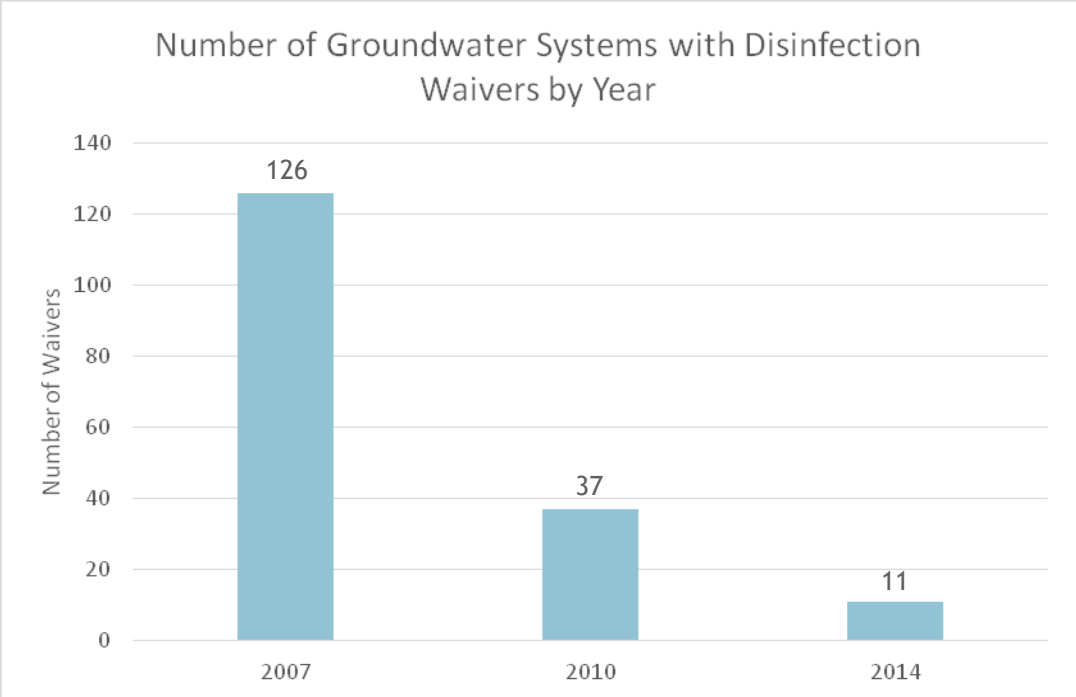
Did you know that since 1948, the Colorado Department of Public Health and Environment began a long history of requiring disinfection at almost all of its public groundwater systems? This is because the department views untreated groundwater as a potentially-significant health risk to the public. The department started issuing disinfection waivers in the late 1960s and continued to do so for at least 20 years. Until the 1980s, waivers from disinfection were only issued at the department director level. Starting in the 1980s, the department's ongoing resource limitations resulted in waiver-related decisions being made without consistent, management-level oversight and there were no processes in place for tracking and reviewing waivers that had been issued or for identifying and tracking systems that did not disinfect and did not have a waiver.

In the early 2000s, the department became concerned about the potential for a drinking water disease outbreak. As a result, the department initiated a project in 2007 to review all 126 groundwater drinking water disinfection waivers. In May 2010, the disinfection waiver review project was completed; 84 waivers were formally withdrawn or closed and 37 waivers were retained. In 2010, the Water Quality Control Commission ruled that no new waivers would be issued and enhanced the protection efforts that systems need to understand and to maintain their disinfection waiver. Beginning in 2012, no schools or child care facilities were allowed to operate under a disinfection waiver. By the end of 2014, only 11 systems retained disinfection waivers.

Disinfection waivered systems must comply with enhanced water quality protection requirements, including having:

- The ability to provide residual disinfection in the event of an emergency.
- Department-approved monitoring.
- Distribution system protection and source water protection plans.
- Additional monitoring requirements.

The department has the authority to withdraw disinfection waivers for non-compliance with regulatory requirements, if the source is contaminated, or in the event of a microbial disease incident or a situation or condition at the water system that the department believes has potential to contribute to a microbial disease incident. ♦



Update on the revised total coliform rule and Colorado initiatives rulemaking

By: Melissa Swerdlow – regulatory development and support

The department recently adopted the revised total coliform rule as well as Colorado-specific requirements for storage tanks, backflow prevention and cross-connection control, water haulers, and minimum chlorine residual disinfectant concentration in the distribution system. Below is a graphic of when the new requirements will become effective as well as some tips for preparing for the new requirements. Opportunities for training will be coming so stay tuned for those details. Additional information about this rulemaking, as well as the full text of the new requirements, can be found here: https://www.colorado.gov/pacific/cdphe/drinking-water-rtcr-rulemaking.

Water Hauler Rule
Effective May 1, 2015

- Create and prepare to submit an operational plan for approval
- Familiarize yourself with the new chlorine monitoring requirements

Backflow Prevention and Cross-Connection Control Rule
Effective January 1, 2016

- Review new policy when it is published
- Review your existing cross-connection control program
- Evaluate how much of your system has been surveyed for cross connections

Revised Total Coliform Rule
Effective April 1, 2016

- Review current sampling plan and sampling pool - revise as necessary
- For seasonal systems, create and prepare to submit start-up procedures for approval

Minimum 0.2 mg/L Chlorine Residual in the Distribution System
Effective April 1, 2016

- Review current chlorine residual levels in the distribution system
- Consider applying for an extension if you would need captial improvements to comply

Storage Tank Rule
Effective April 1, 2016

- Evaluate past storage thank inspection history
- Review current storage tank maintanence and inspection practices
- Create written plan for inspecting finished water storage tanks

Operating plan for operator certification

By Jackie Whelan, facility operator program

Regulation 100 requires every water treatment facility, domestic or industrial wastewater treatment facility, wastewater collection system and water distribution system to be under the supervision of at least one certified operator in responsible charge, holding a certificate in a class equal to or higher than the class of the facility or system. Regulation 100 also reserves all process control and facility integrity decisions to the certified operator(s) in responsible charge.

The operator in responsible charge may delegate routine tasks and activities to staff operators through a written operating plan. These operators may or may not be certified. The certified operator in responsible charge may delegate to another certified operator the authority to make certain operational decisions within the framework of the facility's operating plan. The plan is written by the certified operator in responsible charge and includes:

- Clearly defined limits of the tasks, activities or decisions delegated to staff operators.
- Identify operators by name, position or skill level that may perform task or activity.
- When to consult with the certified operator in responsible charge.

Guidance documents and templates are located at www.colorado.gov/cdphe/wqcd, click on facility operator certification then operating plan.

For assistance, please contact the local assistance unit at 303-692-3665 or cdphewqdwtraining@state.co.us. Questions, please contact Jackie Whelan at 303-692-3617 or jackie.whelan@state.co.us.

Free Training Opportunities:

The local assistance unit has a team of coaches and trainers ready and willing to present on a host of topics at your facility and on your schedule. One-on-one or classroom sessions can be arranged for operators, owners and board members. Training units are available. For a complete listing of course topics visit www.colorado.gov/cdphe/wqcd and type "drinking water training opportunities" in the search box, then click on request coaching. Or contact the local assistance unit at cdphe.wqdwtraining@state.co.us or 303-692-3665 to request a coaching session.

Facility classification verification project

By: Doug Camrud – engineering section

The Water Quality Control Division Engineering Section has embarked on a special project to review and verify the current facility classification for all drinking water and domestic wastewater treatment facilities, and collection and distribution systems.

This project will use one or two part-time employees and two part-time temporary interns to review the classification of each facility and system in accordance with Regulation 100.

As part of the project the engineering section will develop a guidance document on the facility classification process to document the process and for future classification use. The support of temporary staff will prevent the project from impacting core work performed by the staff. It will also provide a much needed step toward consistency and compliance assurance in regards to facility classifications.

The goal of this project is not to establish new norms with regard to facility classifications but rather to ensure existing practice has been applied uniformly across the state.

This project is being overseen by Tyson Ingels, the lead drinking water engineer. If there are any questions or comments regarding this facility classification review and verification project, please contact Tyson at 303-692-3002 or tyson.ingels@state.co.us.

Small communities water and wastewater grant fund

by Mike Beck, grants and loans unit

Fifteen community drinking water and wastewater systems in small communities throughout Colorado will receive a total of $9.5 million to fund planning, design or construction of public water systems or treatment works necessary for the protection of public health and water quality. Funding for the grants was provided by the state Legislature under Senate Bill 09-165 and SB14-025. Governmental agencies, nonprofit public water systems and counties representing unincorporated areas of fewer than 5,000 people were eligible to apply for grants of up to $950,000.

Chlorine: It's a gas to work with!

by Mike Bacon, drinking water coach

Coach's Corner

Drawn by Tiffany Jackson

If you use chlorine gas for disinfection, you need to know that improper connections or safety practices could be considered a significant deficiency. Gas cylinders and feed equipment should be in a storage room with proper ventilation and gas detection equipment. All gas cylinders need to be strapped or chained to a solid wall whether they are full or empty. The important thing to remember is that pressurized or vacuum chlorine feed lines must not carry chlorine gas beyond the chlorinator room. If your situation requires that they do, the lines should be in plastic conduit, and not exposed. Figure 1 shows a safe working environment. It has proper ventilation, gas detection, the cylinders are secured to a wall and the gas and solution lines are properly color coded. After the injector, the chlorinated lines should be painted yellow or have yellow electrical tape wrapped around the line every 12 inches.

Figure 1

Figure 2 shows rubber hoses being used on both the suction and discharge side of the injector/diffuser, the fresh water line, and the chlorinated water line. Gaseous chlorine under pressure must use Schedule 80 seamless steel tubing, never PVC. The Chlorine Institute recommends rubber for chlorine in solution; however my experience with the rubber hose was not a good one. The inside of the rubber hose deteriorated into small ball shaped pieces, plugging the orifice of the nozzle in the injector. This created a back pressure situation which caused the chlorinated water to back-feed into the feed regulator and chlorinator. When the lines were disconnected, gas was released.

Figure 2

Even if you use liquid chlorine, either sodium or calcium hypochlorite, the take home message is the same. The injectors, suction and feed lines should have a maintenance program. This program would include maintaining diaphragms, suction and discharge valves in the pump to reduce the possible back pressure that would occur if the injector would plug. Please see the *State of Colorado Design Criteria for Potable Water Systems* for a complete list of safety features.

Our responsibility is to provide safe drinking water to the public and safety to the operators. Be safe!

Drinking Water Quiz

Think you know everything about drinking water? Prove your drinking water knowledge with our quiz. Complete any of four 2015 drinking water quizzes online and you'll be entered in a drawing to receive AWWA Water Operator Field Guide valued at over $50. The drawing will be held in January 2016. Go to http://fs8.formsite.com/cohealth/form370/index.html to record your answers. Answers will appear in the next issue. Answers to fall 2014 quiz on page 12. See page 13 for the 2014 winners.

1. If your emergency source is groundwater under the direct influence of surface water and uses only a roughing filter, can it be directly connected to the distribution system?
2. To date, how many drinking water disinfection waivered systems are there in Colorado?
3. When do schedule 2 systems have to begin their second round of source water monitoring as part of the long-term two enhanced surface water treatment rule?
4. How much was an individual grant award from the Small Communities Water and Wastewater Grant Fund?
5. Who assisted with Jamestown's drinking water system recovery?

   a) other drinking water systems.

   b) drinking water organizations.

   c) local, state and federal agencies.

   d) Red Cross and Salvation Army.

   e) all of the above.
6. Will grant assistance be available to support state revolving fund planning costs?
7. How did Jamestown notify other drinking water systems throughout Colorado of the resources they needed to get their system back online?

   a) NPR.

   b) CoWARN.

   c) smoke signals.

   d) Cold calling.

   e) Fox News.

Coming Down the Pipe...

Changes to the state revolving fund program

by Mike Beck, grants and loans unit

To better serve the water quality needs of Colorado, the three state agencies that administer the drinking water and water pollution control revolving fund programs commenced an initiative to improve the operation of these important funding programs. The program staff has worked to better focus program resources on the needs of customers – local governments – who are funding capital construction projects. Program changes include a new applicant pre-qualification process that will help expedite funding requests, simplified loan application, added application deadlines throughout the year and the opportunity to self-certify certain projects. Grant assistance is shifting to use principal forgiveness funds from construction to project planning, design and engineering support for small communities. Interested applicants are asked to complete a pre-qualification form detailing potential project. Over the next year the program will implement a web-based funding application and project tracking platform. A series of webinars and workshops will be conducted across the state throughout the year. Contact your regional revolving fund project managers to request a workshop in your area and learn more about the program changes. Visit www.colorado.gov/cdphe/wqcd and select grants and loans then contacts to determine the project manager for your area.

New monitoring schedules:

To download a copy of the 2015 monitoring schedule for your water system please visit https://wqcdcompliance.com/schedules. As in 2014, monitoring schedules will be updated every Wednesday and will display if sampling results are received and monitoring requirements satisfied. Please carefully review the information in your schedule and contact compliance assurance with any changes. Visit https://www.colorado.gov/cdphe/wqcdcompliance for contact information.

You may access your 2014 compliance check at wqcdcompliance.com/check.

Ask Aqua Man

Dear Aqua Man,

Under what circumstances can I tap into my system's emergency water source?

Walter Tapper

Dear Walter:

Although many public water systems have multiple sources and/or facilities as a necessity to meet all customer quantity demands (year-round, temporary or seasonal), an emergency source is defined by Regulation 11 to be water that is used only as a result of extreme circumstances, and is otherwise kept offline. In most cases, emergency sources cannot be used year-round or as seasonal sources.

Although an emergency source is not meant to be used often, treatment dedicated to the emergency source must be permanently installed with prior approval from the department as is required for permanent sources. Emergency sources that can directly produce water and enter the distribution system at the flick of a switch or opening of a valve must have disinfection and, if not a ground water source, filtration in place before the entry point. Emergency sources without such treatment installed must have piping physically disconnected or electrical controls removed and/or locked out in order to prevent accidental source activation and entry of unfinished water to distribution.

Using any emergency source requires a public water system to take a nitrate and bacteriological sample prior to entry into the distribution system and notifying the department within 24 hours of the emergency source activation. Using an emergency source without disinfection requires contacting the department 24 hours prior to use and may require public notice for a boil water advisory. ♦

Quiz Answers

Answers to the drinking water quiz published in the fall 2014 issue of *Aqua Talk*.

1. Which of the following did the High Park Wildfire Water Quality Study focus on? *e. All of the above.*

2. How can a small system receive a free chlorine test kit? *b. Complete step one of the pursuing excellence awards program.*

3. Who is eligible to receive pursuing excellence award perks? *d. All of the above.*

4. On which of the following topics can you receive training from the local assistance unit? *j. All of the above.*

Chlorine test kit finds a home!

By: Kaitlyn Minich – local assistance unit

Congratulations to Hoover Hills Water and Sanitation District on becoming the first participant in the Pursuing Excellence Awards Program. The system has received a free chlorine test kit for their participation, and is now eligible to receive additional perks.

The Pursuing Excellence Awards Program is designed to provide all public drinking water systems and operators with the resources and incentives they need to continuously improve performance from source to tap. Hoover Hills used program templates to set goals and create a plan to achieve those goals. The system is in the process of partnering with the local fire department to implement a flushing program to improve water quality and reduce customer complaints throughout their distribution system. As a participant in this awards program, Hoover Hills is joining in an information sharing program that is designed to connect water systems in an effort to improve water quality across the state.

The program provides free training opportunities for participants, as well as recognition during national safe drinking water week. Free chlorine test kits are available to participating systems that serve fewer than 3,300 people (while supplies last), and additional perks are available for systems of all sizes.

For additional information regarding this program, please contact Kaitlyn Minich at 303-691 -4084 or Kaitlyn.Minich@state.co.us. ♦

And the winner is . . .

Winter 2014 Aqua Talk offered a chance at AWWA Water Operator Field Guide to anyone completing all four 2014 drinking water quizzes. Participants names were entered into a drawing, and the winners are:

Joann Goodman and Serenity Valdez

We are offering a similar opportunity in 2015. Answer any of four 2015 drinking water quizzes on-line or by mail to have your name entered in a drawing to win a water operator field guide valued a over $50. ♦

Safety tip

Remember the ABC's. Always be careful no matter if you are working with chemicals, repairing a line, driving or just picking something up from the floor. Always use good safety practices, and personal protective equipment when necessary. ♦

Facility operator program

by Jackie Whelan, local assistance unit

The *Water and Wastewater Facility Operators Certification Requirements*, Regulation 100, requires owners to ensure all water and wastewater facilities operate under the direct supervision of a certified operator and the regulation outlines certification requirements.

Training: Basic training is available at no charge by downloading *Operator Basics* at Montana University Water Center watercenter.montana.edu. This training course is often sufficient preparation to pass entry level exams in water and wastewater. Additional training is available from many sources. Board approved courses can be found on the Operator Certification Program Office's website at www.ocpoweb.com.

Each certification is valid for three years. Professional development requirements must be completed within the three year period. Many training opportunities offered by the Water Quality Control Division are free or low cost to facilitate the on-going education requirements. A list of board-approved courses for training units is available on the Operator Certification Program Office website.

Passing the appropriate level exam is required for certification. Exams are taken sequentially starting at level D for treatment and level 1 for collection or distribution. Exams are offered three times each year. The deadlines to submit exam applications are March 1, July 1 and Nov. 1; there are multiple exam dates and locations in each exam cycle. For an additional fee electronic testing at the OCPO office is available. Information regarding certification exams is available by contacting OCPO at 303-394-8994 or www.ocpoweb.com.

Applications, fees, submission deadlines and other exam information are available through OCPO. Colorado specific need-to-know study topics are also listed on their website.

Operator in responsible charge changes: The owner/permittee with a new ORC must submit a contact update form to the division within 30 days of the change. Forms are available at www.colorado.gov/cdphe/wqcd. As a courtesy please notify the division in writing if you are the certified operator/ORC and are leaving the facility. Please include your name, the name of the system, the PWSID number or permit number and the effective date of separation.

Additional information is available on the division's website at www.colorado.gov/cdphe/wqcd, click on facility operator certification. ♦

To all readers:

Have some time saving helpful hints or tips to share with fellow operators? Can Aqua Man answer your question? Is there a topic you would like discussed? Contact Jacki Main by

- email: jacklyn.main@state.co.us
- phone: 303-692-3665
- fax: 303-782-0390
- mail: WQCD, 4300 Cherry Creek Drive South, Denver, CO 80247

Visit us on the web

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Water Quality Control Division home page

https://www.colorado.gov/cdphe/wqcd

Water operator training opportunities

https://www.colorado.gov/pacific/cdphe/drinking-water-training-opportunities

Aqua Talk online

https://www.colorado.gov/pacific/cdphe/search/site/aqua%20talk

Inspection services

https://www.colorado.gov/pacific/cdphe/drinking-water-inspection-services

Contact list for drinking water regulations

https://www.colorado.gov/pacific/cdphe/wq-regulations

Colorado
Safe Drinking
Water Program
Aqua Talk

Aqua Talk Newsletter Information

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We welcome comments, questions, story ideas, articles and photographs submitted for publication. Please address correspondence to Jacki Main, Aqua Talk Newsletter, Water Quality Control Division, 4300 Cherry Creek Dr. S., B2, Denver, CO 80246,1530 or email comments.wqcd@state.co.us. Enter *Safe Drinking Water Newsletter* as the subject. Past issues are available by contacting the editor or visiting the website at: www.colorado.gov/cdphe/wqcd and enter Aqua Talk in the search box.

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Editor: Jacki Main

Purpose: To communicate division drinking water-related issues to stakeholders in a fun and informative format.