AQUA TALK

Colorado Department of Public Health and Environment

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A newsletter from the Safe Drinking Water Program of the Water Quality Control Division

Inside this issue

Rocky Mountain Section American Water Works Association and Rocky Mountain Water Environment Association Lead Get into Water! Project

Program has its first major success

by Dave Pier, Chair, Rocky Mountain Section American Water Works Association

Dave Pier, Chair, RMSAWWA

The Boulder Valley School District (BVSD) has approved a new curriculum to introduce high school students to high-demand jobs in the water sector.

The new curriculum is called the Water Utility Science Program (WUSP). It was approved on May 11, 2010, by the Boulder Valley Board of Education.

Students interested in WUSP will begin classes this fall at the Career and Technical Education Center (CTEC) located at BVSD's Arapahoe Campus.

WUSP will prepare students for career opportunities in water and wastewater. The program will offer specialized training that leads to more state certifications and jobs in both fields.

Industry sources estimate that as many as 2,700 mission-critical water positions could open in Denver, Arapahoe, Douglas and Boulder counties in the next five to six years because of baby boomer retirements, jobs lost to other industries, population growth and of new facility construction.

The city of Boulder contributed $10,000 to help fund an industry professional in the classroom to provide specialized content knowledge for this course.

Joe Cowan, Water Distribution Maintenance Supervisor for the city of Boulder and RMSAWWA Trustee, said the city of Boulder, facing dozens of looming retirements in the water and wastewater departments, has been working with BVSD for years to make training available at the high school level. Funding from the Colorado Department of Labor and Employment (CDLE) is helping make his vision a reality through the Get Into Water! Project.

Funding from CDLE will also help pay for training in an additional school district. The Get Into Water! Project Team is having conversations with other school districts in the four counties to plan for the next program to be opened in fall 2011. Continued on Page 3 >>>

Joe Cowan, Water Distribution Maintenance Supervisor, city of Boulder

Message from the Safe Drinking Water Program Manager

Directing Professional Development to Provide the Greatest Value

A well-trained workforce is essential for the sustainable supply of safe drinking water. While the demographics of our workforce are changing, that change presents opportunity. We've been hearing about it for years, and I've even heard estimates that there will be thousands of good-paying job openings in Colorado's water utility sector during this decade. So we all need to develop our workforce. I believe that human beings have an innate desire to learn. Our challenge is to direct that desire to learn to ensure that our fellow citizens always have safe drinking water.

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

To meet this challenge I believe that the Safe Drinking Water Program must enhance its investment in professional development activities for internal staff and public drinking water systems with the specific intent of providing learning opportunities directly tied to our public health mission. With this in mind, we have some specific near-term goals, and a longer-term vision.

During the state fiscal year that runs from July 1, 2010, to June 30, 2011, we plan to:

1. Develop an internal training program for all staff pertaining to waterborne disease outbreaks. Since our No. 1 program goal is to prevent disease outbreaks, it stands to reason that we ought to understand outbreaks and the factors that contribute to them. The training program will contain elements based on lessons learned from Colorado outbreaks including recent outbreaks and those that occurred in the 1980s. Additionally, the program will include a historical perspective and current national trends. After internal implementation, we will also offer the training to water systems.
2. Launch a storage and distribution system training program. Storage and distribution have been associated with recent outbreaks in Colorado, as well as on a national level. With cooperation from fellow training providers, a hands-on training facility is being constructed at Red Rocks Community College. Our first round of storage and distribution system training courses filled rapidly. Small systems that complete the entire training series will receive a brand new digital chlorine test kit.
3. Continue water treatment optimization training as part of our Excellence Program. These training events have been very popular and highly praised. I believe that optimizing drinking water treatment further reduces the risk of waterborne disease. This training will continue.
4. Continue our support for training provided at conferences and meetings, training provided at the operator certification schools, and training provided by the Rocky Mountain Section of AWWA (RMSAWWA), Colorado Rural Water Association and others.

We are not alone in prioritizing training and workforce development in the water community. In this issue of Aqua Talk, we are very pleased to have a lead article written by Dave Pier, President of RMSAWWA. This article is about an exciting new project called Get into Water! The project is creating new programs in four Denver metro area counties to attract and training new talent for water industry careers.

Our performance partners in the water community are central to our ability to support training statewide. In February 2010, we began the process of developing a more comprehensive training plan for the future - the 2015 Strategy. As part of that effort, we hosted a Water System Training Roundtable all-day retreat that included numerous stakeholders such as water systems, engineers and training providers. We discussed common compliance weaknesses at public water systems that may increase public health risks and identified gaps in our current training offerings that could address those weaknesses. Our goal for the 2015 Strategy is to develop a comprehensive framework to organize and align the training services we support in coordination with training providers, so that future professional development opportunities will meet the challenge of helping ensure safe drinking water for the public.

Thank you.

Rocky Mountain Section American Water Works Association and Rocky Mountain Water Environment Association Lead Get into Water! Project

Program has its first major success

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Get Into Water! will address workforce deficits projected in Colorado's Front Range for mission-critical jobs in the water and wastewater field over the next five to six years.

"Get Into Water! will introduce adults and high school students to career opportunities in the water and wastewater operations fields and will provide training courses leading to State certification," Cowan said.

"Jobs in this field tend to be stable, and benefits packages are good, too."

This initiative will help fill the resource pipeline with qualified operators for jobs in water and wastewater treatment, plant maintenance and repair, water distribution, wastewater collection and SCADA/instrument control operations.

City of Boulder $10,000 contribution: (From left) Ned Williams and Joe Cowan, city of Boulder; Jamie Eichenberger and Kevin Hill, RMWEA; Dave Pier, RMSAWWA.

RMSAWWA and the Rocky Mountain Water Environment Association teamed with the Arapahoe Douglas Works!, Denver Office of Economic Development-Workforce Development, Workforce Boulder, American Water Works Association and other local and regional water and wastewater providers to develop an implementation plan.

The implementation plan will address more than just training. The Industry Advisory Council implementation plan will address training and programs related to knowledge management, SCADA/instrument control positions, human resource/operations staff collaboration and recruitment.

CDLE approved the implementation plan and $428,000 in grant funding for the Get Into Water! initiative.

Boulder's contribution of $10,000 is a significant boost to the initiative.

"We are thankful for their financial support and for providing leaders who are passionate about our program," said Cowan.

"A lot of work lies ahead to expand the resource pool to ensure qualified operators can fill these mission-critical positions in the four-county region. Every contribution, whether financial or in-kind services, is greatly appreciated and will greatly benefit the program."

get into water!

For more information, contact
The Get Into Water! Project
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www.getintowaterco.org

Nine Forward-Thinking Utilities Sign on to Participate in an Innovative Source Water Study

by Nicole Graziano and Maggie Pierce

The Water Quality Control Division's Standards Unit and Safe Drinking Water Program are working in partnership with nine local drinking water utilities and the University of Colorado Boulder on the High-Quality Water Supply Study.

The goal of this study is to investigate the impact of algae growth in reservoirs on disinfection byproduct (DBP) formation at drinking water utilities. The data obtained in this study will be used to develop nutrient criteria for the State's reservoirs and lakes. Any nutrient criteria would not automatically apply to all high-quality or direct-use water supply reservoirs, but would be applied to individual reservoirs through the basin regulation rulemaking hearing process. The data from this study will be part of a larger nutrient criteria proposal which is the focus of a rulemaking hearing scheduled for June 2011.

Water Quality Control Division's Jim Saunders measures Secchi depth at a local reservoir.

For this study, data will be collected in two tiers. The first tier consists of sampling 10 local reservoirs every two weeks (i.e., biweekly) from May through September. While these data will be used to investigate the relationship between DBP formation and algae, nutrients and other constituents, these data will also be used to characterize water quality changes over the summer season and capture unanticipated circumstances such as algae blooms or DBP spikes. Samples will be collected at the near surface (i.e., epilimnion) and at a deeper location in the reservoir. In addition to these analyses, participating utilities will also profile their reservoir(s) during each sampling event for temperature, pH, conductivity and Secchi depth.

For the second tier, division staff will sample 30 local reservoirs once, either in July or August. The objective of this effort is to investigate the relationship between DBP formation and algae, nutrients and other constituents. Samples will be collected at the height of the algal growing season when the potential for algal production to increase DBP formation is at its greatest. In addition to these analyses, division staff will also conduct profiling on all of these reservoirs. Similar to the first tier, samples will be collected at the near surface and at a deeper location in each of the reservoirs.

Based on this approach, participating utilities will collect over 300 samples which will undergo 2,500 analyses. Samples will be analyzed for algae speciation, chlorophyll *a*, total trihalomethane (TTHM) and haloacetic acids (HAA5) formation, total and dissolved organic carbon, total nitrogen, total phosphorus, nitrate, nitrite, ammonia and ultraviolet absorbance at 254 nanometers (UV254). Dr. Scott Summers, Dr. Fernando Rosario, Dr. Diane McKnight, and several graduate students from the University of Colorado Boulder will work together to analyze all of the collected samples.

We believe that the data obtained from this study will confirm the conclusions of other research efforts conducted in other states, including New York, that suggest chlorophyll *a* criteria is an effective management tool for DBP formation in Colorado's lakes and reservoirs. The project may also identify other parameters suitable for criteria development.

New Ground Water Disinfection Rules

by Armando Herald

The Water Quality Control Division of the Colorado Department of Public Health and Environment is proposing amendments to the Colorado Primary Drinking Water Regulations that will establish new groundwater disinfection requirements for all public water systems that use groundwater. The hearing to adopt these proposed amendments is scheduled for August 9, 2010. For more information please visit "Rules for Adoption" at http://www.cdphe.state.co.us/wq/drinkingwater/RulesforAdoption.html.

The amendments are proposed to become effective November 30, 2010, and are summarized as follows.

Groundwater source

- Minimum treatment techniques requiring groundwater systems to disinfect a groundwater source at all times that the source is serving water to the public. The disinfection must include chemical treatment resulting in at least 0.2 mg/L residual disinfectant concentration in water entering the distribution system at the entry points.
- Weekly residual disinfectant concentration monitoring at all entry points serving groundwater to the public. The monitoring requirement increases to every 24 hours while the residual disinfectant concentration is below 0.2 mg/L.
- 72 hours to correct a residual disinfectant concentration that is discovered to be below 0.2 mg/L, otherwise a treatment technique violation occurs.
- A groundwater system in violation of the treatment technique must resolve and document the situation, keep records, notify the department and issue a public notice.
- A groundwater system that is chlorinating now needs to begin compliance with monitoring requirements by July 1, 2011.
- A groundwater system disinfecting now with only ultra violet light must begin additional required chemical disinfection by July 1, 2012.

Groundwater distribution system

- At least a detectable residual disinfectant concentration throughout the distribution system must be measured at the same point and time as total coliform.
- The residual disinfectant concentration cannot be undetectable in more than 5 percent of the measurements taken each monitoring period for any two consecutive monitoring periods, otherwise a treatment technique violation occurs.
- A groundwater system in violation of the treatment technique must issue a public notice.

Groundwater disinfection waiver requirements

- Groundwater systems with a disinfection waiver prior to November 30, 2010, will continue to have a disinfection waiver and are not subject to groundwater disinfection requirements.
- A groundwater system with a disinfection waiver that is determined to be a school or a daycare center will no longer have a disinfection waiver.
- The department may revoke disinfection waivers from groundwater systems with susceptible populations.
- The department will no longer issue new disinfection waivers.
- A groundwater system with a disinfection waiver must comply with the following:
  - Provide public notice that the system operates under a disinfection waiver.
  - Ensure that the system is operated by a certified operator.
  - Have emergency disinfection or an emergency disinfection plan.
  - Keep records of all chlorination activities.
  - Have a monitoring plan.
  - Protect their distribution system (distribution system protection plan).
  - Protect their groundwater sources (source water protection plan).

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New Ground Water Disinfection Rules

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- The Department may:
  - Evaluate any groundwater source or storage system using department design criteria and well construction criteria.
  - Require sampling of any groundwater source.
  - Require sampling and proof that new groundwater sources are not contaminated.
  - Perform a sanitary survey of the system at any time.
  - Review the violation history of the system.
  - Withdraw a waiver from a system with a fecally contaminated source.
  - Withdraw the disinfection waiver.
  - The groundwater system has the right of appeal to a department decision to withdraw a disinfection waiver.

Groundwater systems with hand-pumped well requirements

- Groundwater systems with hand-pumped wells must comply with the following:
  - Operate according to department guidance or department approved alternative guidance.
  - Disinfect hand-pumped wells before opening for the season.
  - Monitor for total coliform at least once a month.
  - Take a hand-pumped well out of service if it is contaminated. The system must eliminate the contamination and disinfect the hand-pumped well before the well can be put back into service.
  - Continuously post public notice whenever the hand-pump well is available for public use.

The People to Talk to About Disinfectant Byproducts Issues

by Sean Scott

The Water Quality Control Division initiated the Systems-of-Concern program in 2004 to help public water systems achieve compliance with minimum treatment and quality standards required by the Colorado Primary Drinking Water Regulations (CPDWR).

The Systems-of-Concern program was re-initiated on January 1, 2010, with the formation of three Compliance teams, one of which will focus on maximum contaminant level (MCL) violations for disinfectant byproducts (DBPs). The DBP Compliance Team will improve DBP rule compliance by applying focused technical and compliance assistance to public water systems that have recurring violations or that are considered significantly out of compliance.

For the two-year period of 2008 through 2009, 20 public water systems violated the MCL for one or more contaminants regulated under the DBP Rule. The technical water quality issues associated with control of DBPs often prevent a system from resolving the violations in a timely manner, and the division must proceed with formal enforcement.

Despite the schedule of required actions outlined in enforcement orders, systems often experience difficulty resolving the violations, and the risk to public health persists. Some systems that return to compliance are not able to sustain compliance, resulting in recurring violations and enforcement orders.

The DBP Compliance Team will work one-on-one with systems that are fighting hard-to-treat water, complex simultaneous compliance issues, water-age problems, and persistent violations. Through focused and diligent technical assistance, the division hopes to hasten each water system's return to compliance, ensure sustainability of compliance solutions, and improve overall protection of public health.

Drinking Water State Revolving Fund: The Green Component

by Lisa Pine

The 2010 capitalization grant from EPA will require Colorado to fund approximately $4.8 million dollars of "green" infrastructure through the Drinking Water State Revolving Fund program. These projects must be identified in the Intended Use Plan to be eligible for DWSRF funding. In addition, the project must meet the definition of one of the four Green Project Reserve (GPR) categories defined by the EPA in *2010 Clean Water and Drinking Water State Revolving Fund 20% Green Project Reserve: Guidance for Determining Project Eligibility,* April 21, 2010.

The following defines the four categories of green projects under the DWSRF program:

1. **Green Infrastructure** includes those projects used to manage wet weather and maintain and restore natural hydrology by infiltrating, evapotranspiring, harvesting and using stormwater.
2. **Water efficiency improvements** include the use of improved technologies and practices to deliver equal or better services with less water.
3. **Energy efficiency improvements** include the use of improved technologies and practices to reduce energy consumption of water projects, use energy in a more efficient way, and/or produce /utilize renewable energy.
4. **Environmentally innovative activities** include those projects that demonstrate new and/or innovative approaches to delivering services or managing water resources in a more sustainable way.

The four categories define which projects qualify as green projects and those that will require a business case to demonstrate they meet the EPA's green principles. For example, distribution line work for drinking water may be considered green, depending on the amount of water loss, energy savings and financial savings associated with the proposed project. However, a business case will be required to demonstrate that the work supports the intent of the GPR.

The business case is a document that supports a project not considered categorically green by the EPA. The documentation must show identifiable and substantial "green" benefits.

However, a business case cannot be used to support a project that has been identified by the EPA as not meeting one of the four category definitions. For example, stormwater ponds that serve an extended detention function and/or extended filtration are not eligible under the GPR program.

For more information about the Green Project Reserve please contact Lisa Pine in the Financial Solutions Unit of the Water Quality Control Division at 303-692-2368.

State Revolving Fund Program Undergoes Audit from Governmental Accountability Office

by Michael Beck

GAO
U. S. Accountability office

On February 17, 2009, President Obama signed into legislation the $780 billion dollar American Recovery and Reinvestment Act (ARRA). The Colorado State Revolving Fund program (SRF), which is in part administered by the Water Quality Control Division, received approximately $70 million dollars to assist with the much-needed water and wastewater rehabilitation projects throughout the state. In order to ensure the funds have been spent appropriately, Colorado is currently undergoing an audit being conducted by the Governmental Accountability Office (GAO). The GAO is known as "the investigative arm of Congress" and "the congressional watchdog." The purpose of the audit is to provide congress an update as to how the funds were awarded and being utilized. The audits are being conducted via question and answer sessions with a thorough review of project files both internally and at the project sites. In addition, the GAO has visited three different projects to review safeguards, internal controls and transparency as it relates to the ARRA requirements.

The core of the audit has looked at program impacts, performance measures, and how the state allocated the required 20 percent green project reserve. The audit also considered, how the ARRA funding has impacted user rates, local water quality and health-related concerns,

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State Revolving Fund Program Undergoes Audit from Governmental Accountability Office

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long-term benefits of ARRA, compliance with Buy-American and Davis-Bacon Act, and job retention and creation. The GAO has also focused heavily on the types of green infrastructure approved and funded. Overall, the audit appears to be going well with minimal questions as to the division's process and utilization of the funds. This can be attributed to the extraordinary work by division staff, consulting engineers and the loan recipients for their well-documented processing and sensitivity to the requirements of using the ARRA funds. A final report is expected to be released, which will outline the finding of the audit.

Little Squaw Resort

Start-up Tips for Seasonal Systems

by Melissa McClain

Summer is here and with it campgrounds and youth camps around the state are opening for the first time this year. In an effort ensure a stress-free start to seasonal public water systems, use the following information to ensure that you are providing safe drinking water to your consumers.

Turning on the System

- Activate the sources and treatment system;
- Inspect the system and make any necessary repairs;
- Run water through the system by opening up hydrants, blow-offs, and faucets;
- Test all backflow prevention devices;
- Open and shut each valve in your system to ensure that all are operable.

Disinfection

- Disinfect and flush all sources, pressure tanks, storage tanks, and distribution lines;
- Test the water for free chlorine to ensure you are maintaining a chlorine residual throughout the distribution system.

Testing

- Prior to opening to the public, collect total coliform sample(s) after the system has been activated and running optimally;
- Each system must collect at least one safe total coliform sample at least 10 days prior to opening;
    - Be sure to note that the sample is for "pre-opening" on the submittal form.
- If any samples come back positive, identify the cause and continue sampling.
    - **Do not** open until clean samples are achieved.
- Test for a chlorine residual at the same time and location for each required total coliform sample. Record this value on the lab paperwork.
- Collect a nitrate sample once the system is up and running.

Tips

Little Squaw Resort

- Sample early in the month (or quarter if applicable) and early in the week to avoid missed deadlines.
    - Note: Pre-opening total coliform samples **do not** count toward the monthly or quarterly routine monitoring requirements.
- Keep extra sample bottles on hand in case replacement or repeat samples are required.
- Be familiar with total coliform requirements in the event that a sample comes back positive.

Please give us a call if you have any questions. We hope this information starts your season off on the right foot!

The Town of Castle Rock Water Treatment Plant

by Mike Bacon

The town of Castle Rock has four water plants, about 15,000 taps, 51 wells, 16 water tanks having a total of 35 million gallons of storage, and serves a population of 45,000. Presently, the plants average about seven million gallons a day. During the summer they treat about 15 million gallons a day. After filtration, the town of Castle Rock uses sodium hypochlorite for disinfection.

The town of Castle Rock has seven operators; four Class A, two Class B, and one Class C operator. Three of the operators are certified backflow assembly technicians. In addition, one operator has a Class 4 Distribution certification, three have a Class 3 Distribution certification, and three have a Class I Distribution certification. The town of Castle Rock also has eight maintenance personnel who work on distribution lines, valves, hydrants and breaks.

At right, are pictures of the town's clearwell, decant pump station, and equalization basin hatches and retaining walls that were recently replaced.

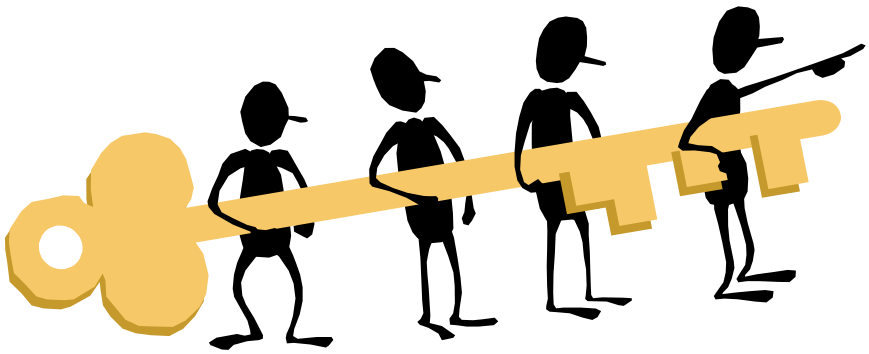
Castle Rock replaced 20 hatches on the decant basins, and five hatches on the equalization basins. The hatches were replaced to prevent any possible contamination from rain, snow, or other sources.

I chose to spotlight the town of Castle Rock because of their team effort in protecting the public's water supply. I see a team approach from operators up to management in achieving the same goal. The goal, as always, is to provide the public with the best water quality possible. Water quality doesn't stop at treatment. It continues all the way through the system up to the resident. Without management support, the operators' passion to treat the water, and the maintenance and the engineering sections working together - the outcome just wouldn't be there. The proof is obvious: Together Everyone Accomplishes More.

Clearwell retaining wall

Equalization basin - new hatches

Decant basin - new hatches



Is Your System Ready for a Sanitary Survey?

by Water Quality Control Division Engineering Section

The Colorado Department of Public Health and Environment Drinking Water Program is responsible for conducting sanitary surveys at public water systems. A sanitary survey is one of our most important functions, because it allows the program to identify potential problems before they can cause a water system to deliver unsafe water or fall out of compliance with the regulations. These valuable surveys can be time-consuming for all, so water system representatives are encouraged to prepare in advance for their survey.

The sanitary survey table on page 11 summarizes the different components of the survey and provides a list of topics that are likely to be reviewed, although not every topic may be reviewed on each survey. Water system representatives are encouraged to review this information so they can have materials and staff available whenever the survey is scheduled. More importantly, preparation may help water system staff to discover and remedy potential problems even before they are identified by the program reviewer.

The sanitary survey includes a review of eight major elements and associated areas of potential concern. The table on page 11 summarizes possible review topics. Additional information on sanitary surveys is provided at http://www.cdphe.state.co.us/wq/engineering/pdf/SanSurvBrochure.pdf. Detailed information on sanitary surveys is provided in the EPA Guidance Manual for Conducting Sanitary Surveys of Public Water Systems; Surface Water and Ground Water Under the Direct Influence (GWUDI), EPA 815-R-99-106, April 1999, available on the EPA Web page at: http://www.epa.gov/safewater/mdbp/pdf/sansurv/sansurv.pdf.

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Summer Interns to Assist Small Systems With Monitoring Plans

by Sharon Williams

You have probably heard the saying "if you fail to plan, you plan to fail." We believe that there is no room for failure when safe drinking water is at stake. So, this year is the second in a row for the Capacity Building Unit to bring in four summer interns to assist small public water systems develop monitoring plans.

The Capacity Building Unit's intrepid team of interns and coaches. Top row: (from left) David Hach, Greg Wallingford, Kaitlin Stabrava and Natalie Bixler. Bottom row: (from left) Coach Gordon Whittaker and Coach Mike Bacon.

Our four interns will work with the two Class A operator coaches on our team. They will spend the summer working in teams of two. Duties will include collecting information from a target list of small groundwater systems and helping each system prepare a monitoring plan.

Each small system our interns work with has been selected to receive special assistance developing a monitoring plan for compliance with Article 1.12 of the Colorado Primary Drinking Water Regulations. The systems were chosen based on previous documented non-compliance with this important regulatory requirement.

The goal of the interns' work is ultimately to increase small-system compliance with regulations related to monitoring and reporting. As we know in the water profession, proper water quality sampling, including sampling at the right place at the right time is critical to ensuring safe drinking water. Having a comprehensive monitoring plan is part of ensuring that success. By helping small systems plan their monitoring, our interns will be helping these systems with a core compliance issue – and helping them plan to succeed!

Is Your System Ready for a Sanitary Survey?

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MAJOR ELEMENT	POTENTIAL AREAS OF CONCERN	POSSIBLE REVIEW TOPICS
Monitoring, Reporting and Data Verification	Samples collected are representative of water supplied to consumers Sampling plan covers all required aspects	Existence and completeness of monitoring plan
System Management and Operation	Ability of water system to produce safe drinking water under all conditions	➢ Cross connection control ➢ Emergency response plan ➢ General operation and maintenance plan ➢ Organizational management plan
Operator Certification	Water system treatment and distribution facilities under the control of properly qualified individuals	➢ Operator-in-Responsible Charge (ORC) designated ➢ ORC and distribution system operator certified at proper level pursuant to regulation 100
Source	Protection from contamination Adequate storage or supply (even during a drought) Approved sources	➢ Quality ➢ Quantity ➢ Reliability ➢ Vulnerability
Treatment	Approved design Effective multiple barriers Chemical impurities and leaching of coatings Appropriate controls	➢ Capacity at current production rates ➢ Operational best practices ➢ Process monitoring ➢ ANSI/NSF certified ➢ Chemical addition practices ➢ Equipment condition
Distribution System	Corrosion and disinfection byproducts formation Bacteriological water quality sampling Inadequate pressure to prevent infiltration into system	➢ Sampling plans that are representative of the entire system; ➢ Field sampling measurements (chlorine residual and pressure)
	Sanitary risks associated with repair procedures Sanitary risks associated with new construction Sanitary risks from cross connections	➢ Water line repair practices ➢ System flushing procedures ➢ Cross connection control program ➢ Water loss tracking/control program ➢ Distribution system maps
Finished Water Storage	Sanitary risks from unauthorized entry Excessive detention time/turnover	➢ Capacity ➢ Maintenance including vent and overflow screens ➢ Security for entry and ladders ➢ Cleaning/Inspection
Pumping	Adequate pressure	➢ Screening ➢ Cross connections ➢ Back up capacity and power

Drawing by Tiffany Jackson, Water Quality Control Division

Coaches Corner

by Mike Bacon

Chlorine was used in the water field as early as 1908 as a primary disinfectant. In 1974, the Safe Water Drinking Water Act was enacted, and amended in 1980, 1986 and 1996. In 1996, the Safe Water Drinking Act required EPA to develop several new regulations including the Disinfectants/ Disinfection Byproducts Rule; the Enhanced Surface Water Treatment Rule; the Ground Water Disinfection Rule; lead and copper Rule revisions; and regulations for arsenic, radon and sulfate.

In 1998, the Interim Enhanced Surface Water Treatment Rule and the Disinfectants/ Disinfection Byproducts Rule were signed into law. The main goal was to reduce the occurrence of *Cryptosporidium* and other disease causing organisms. The new rule was developed to protect the public from harmful concentrations of disinfectants and from trihalomethanes.

In 2002, EPA promulgated the Long Term 1 Enhanced Surface Water Treatment Rule. The purpose of this rule is to improve public health protection through the control of microbial contaminants, particularly *Cryptosporidium* and to prevent significant increase in microbial risk that might otherwise occur when systems implement the Stage 1 Rule.

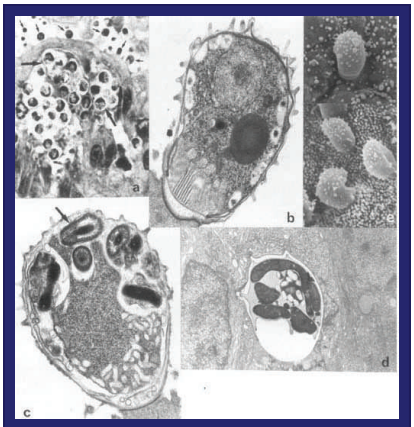
In 2005, EPA promulgated the Long Term 2 Enhanced Surface Water Treatment Rule which increased the monitoring and treatment requirements for water systems that are prone to outbreaks such as Cryptosporidium. The rule contained a provision to reduce risks from uncovered finished water reservoirs and to ensure that systems maintain microbial protection when they take steps to decrease the formation of disinfection byproducts that results from chemical water treatment.

Also in 2005, the Stage 2 Disinfection Byproducts Rule was promulgated. There were standards for controlling the harmful byproducts of drinking water disinfection measures. The rule strengthens public health protection for consumers by tightening compliance monitoring requirements for both total trihalomethanes and haloacetic acids.

In 2006, the final Ground Water Disinfection Rule was signed. The goal of this rule is to protect the public from pathogen contamination in water systems that use groundwater. There are no mandatory disinfection requirements, but the rule does build on existing state programs and provides flexibility in defining significant deficiencies.

Temperature, pH, turbidity, organic, inorganic matter and reducing agents can influence disinfection. The main purpose of chlorination is to destroy harmful organisms. Chlorine is the most widely used, because it is easily obtained, inexpensive and leaves a measurable residual. There are some concerns about the carcinogenic compounds with chlorine. While other disinfectants are available, factors such as higher costs, lack of residual and equipment storage and maintenance should be considered.

Maintaining a chlorine residual that will provide disinfection, proper contact time, reduce the chance for a positive Total Coliform test, and reduce the number of taste and odor complaints are the operator's role in providing quality water to the customer. Additionally, recording daily or weekly check sample results and maintaining chlorination equipment, are equally important, to ensure that adequate disinfection is taking place.

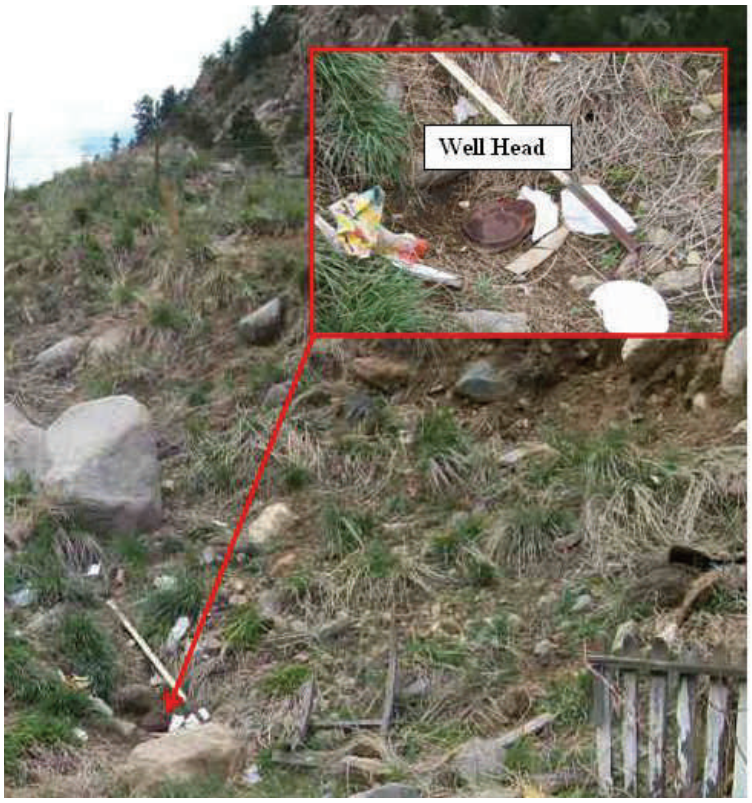


Cases of *Cryptosporidium* up across Colorado. Photo courtesy of goldbamboo.com.

What Do You See?

Can you spot the water safety issues with this picture? If you see something we missed, let us know!

Send your comments to comments.wqcd@state.co.us. Enter "Safe Drinking Water Newsletter" as the subject.



Answer

- The well head for the upper well is at grade level and is located at the base of an embankment. In accordance with the State of Colorado Design Criteria for Potable Water Systems, the ground around the well must be graded so that surface water will be diverted away from the well for a distance of 20 feet (Section 2.1.8).
- In accordance with the State of Colorado Design Criteria for Potable Water Systems (Section 2.1.1) and the State of Colorado Well Construction Rules requires that the outermost well casing extend more than one foot above the adjacent ground surface.
- The debris and trash around well should be removed.

Coming Down the Pipe… News Alerts for the Drinking Water Community

Long Term 2 Bin Classifications Due Soon!

Have you recently completed your Long Term 2 Enhanced Surface Water Treatment Rule *Cryptosporidium* sampling? Don't forget to submit the system's bin classification to the division no later than October 1, 2010!

Forms can be found at http://www.cdphe.state.co.us/wq/drinkingwater/pdf/LT2ESWTRBinClassFrm.pdf. If you have questions or need assistance please do not hesitate to contact Julie Conroy at 303-692-3405.

Facility Operator Program News

Water And Wastewater Facility Operators Certification Board (WWFOCB) News

Coming soon: This spring the WWFOCB will make electronic testing available at the OCPO office. You must apply for exams by the ordinary deadlines, but then will be able to make an individual appointment to take the exam. Watch for details in the regular spring letter from the OCPO office and on the OCPO and WWFOCB websites.

The next board meetings is scheduled for August (date TBD) at the Colorado Department of Public Health and Environment in the Sabin Room in Building A (unless otherwise noted). The meetings begin at 9 a.m. and are an excellent opportunity to hear and be heard. If you would like to provide any comments in addition to the published agenda, you should contact Heather Timms at 303-692-3469. Specific agenda information can be found at http://www.cdphe.state.co.us/op/ocb/MeetingsandHearings/Agenda.html. For all other inquiries you may visit www.cdphe.state.co.us/op/ocb (the official WWFOCB website).

Renewals: Please check the renewal date on your certification! Renewal applications must be submitted, along with the appropriate number of training units, completed legal presence documents and the application fee, **by the expiration date.** If you think that you may not be able to complete your renewal by the expiration date, please call the Facility Operator Program 303-692-3510 or 3503 in order to request a bridge letter. Remember, certificates expired for more than two years are automatically revoked!

Operator in Responsible Changes: If you are the Operator in Responsible Charge (ORC) of a system and are leaving that system, please send written notice to the Facility Operator Program. The notice should include your name, the name of the system and the effective date of separation. If you are the administrator of a system with a new ORC, please submit a new ORC form to the Facility Operator Program as soon as possible. ORC forms may be found at www.cdphe.state.co.us/op/ocb/Reporting-ORC/ocbImpInfo.html.

Operator Certification Expense Grant Reimbursements Increased!

If you work as an operator (either water treatment or distribution) for a community or non-transient non-community public drinking water system that serves a population of 3,300 people or less, you may qualify for certification cost reimbursement through our expense reimbursement grant. **The application MUST be received by the department within six months of issue date on operator certificate.**

The grant money allotted for certification exam reimbursement and renewals has just been increased to $230 per application!

Application Forms: Contact: Lori Moore at the division at 303-692-3510.

NEW: Facility Operator Program Compliance Assurance and Enforcement Guidance

The Facility Operator Program within the Water Quality Control Division has the primary responsibility to ensure that each public water system, each domestic wastewater system, and each industrial wastewater system in Colorado is operated under the supervision of an appropriately certified operator in responsible charge.

In order to fulfill this commitment, the Facility Operator Program has drafted a guidance document which outlines the steps to be taken by the division in order

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Facility Operator Program (from left) Lori Moore, Betsy Beaver

Facility Operator Program News

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to assure compliance and, failing timely compliance, to initiate enforcement action.

The material to be reviewed is found in three documents:

- Compliance Assurance and Enforcement Guidance: Facility-Operator Program" (Draft – December 2009),
- "Flow Chart – Compliance Assurance and Enforcement Guidance: Facility-Operator Program" (Draft – December 2009),
- Administrative Penalty Guidance and Calculations: Facility-Operator Program" (Draft – December 2009).

The link for the guidance documents is: www.cdphe.state.co.us/wq/FacilityOperatorBoard/index.html. If you know of a system that may be heading for enforcement, due to lack of compliance for not being under the direct supervision of an appropriately certified operator, this information will be important for them to see. For questions please contact Betsy Beaver at 303-692-3503.

Ask Aqua Man

Dear Aqua Man,

I am getting ready to apply for and take the exam for the water level "D" certification and have some questions on how to complete the application. For instance when asking about experience, do they want my entire work history or only water/wastewater experience? What does it mean when they ask if I am the ORC? Any information you may provide that can help me apply would be greatly appreciated!

Sincerely,

Future Certified Water Professional

Dear Future Water Professional,

How to complete certain sections of the certification exam application such as those you referenced above are excellent and commonly asked questions so I will address those sections of the application that could use some guidance.

The application is broken down by sections numbered 1 through 12; some are self-explanatory such as name and address while others such as the ORC (operator in responsible charge) and experience questions are not.

Section 1 asks you to choose which type of exam you would like to take. You must submit a separate application for each exam you want to take! The top row of boxes are for you to indicate your choice of either water, wastewater or industrial treatment; the "level" choices are D (lowest level), C, B or A (highest level). Be careful here! If you want to take the Small Water, Small Wastewater, or Transient Non-Community exams, **DO NOT** mark your selection in the water or wastewater treatment boxes. The first two boxes on the second row are for water distribution and wastewater collection; the level choices are 1 (lowest level), 2, 3 or 4 (highest level). The last box in the second row is labeled "Small Systems;" the level choices are "TNC" (for Transient Non-Community exam), "water" (for Small Water System exam) and "wastewater" (for Small Wastewater System exam).

Section 2 is where you must select the exam date and location. This choice comes from the "Instructions /Dates and Locations" memo made available no later than six weeks prior to the application deadline. This form is on the Operator Certification Program Office (OCPO) website (www.ocpoweb.com/index.cfm).

Section 3 is for general information – name, address, phone, etc.

Section 4 requests the facility PWSID (public water system ID number) or the permit number (wastewater discharge permit number) of the facility where you are currently employed. If you do not currently work at a water of wastewater facility, you may disregard this section.

Section 5 asks if you are the ORC. An operator in responsible charge (ORC) is someone who has "been designated by the owner of the water

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Ask Aqua Man

<<< Continued from Page 15

or wastewater facility to be the certified operator(s) who has ultimate responsibility for decisions regarding the daily operational activities of the facility that will directly impact the quality and/or quantity of drinking water, treated wastewater, or treated effluent." (Regulation 100, 100.2 Definitions, page 3) If you currently work for a water/wastewater facility and are NOT the ORC (and not all operators certified and employed by a water or wastewater facility are) then check "No" and list the name and contact information for the ORC of the facility where you work. If you do not currently work at a water/wastewater facility, just check "No."

Section 6 asks whether this is a new application or a re-take. If you have taken the same type and level of test previously but did not pass, then this application is for a re-take, otherwise this is a new application.

Section 8 asks about your relevant experience. Certain levels and types of experience are required to help one qualify to take varying levels of certification examination. The application review committees need this information so they can reliably evaluate your relevant work experience to see if it meets the requirements for the exam you want to take. You should only indicate experience that is applicable to the type and level of certification for which you are applying. If you are applying for a water treatment examination, do not list water distribution experience here. Experience in a separate field might be useful as cross-experience (see Section 9 and Section 100.12 in Regulation 100), but should not be entered here. You should not include unrelated work experience (such as park maintenance). The description of experience should be detailed. Feel free to attach extra sheets – don't try to cram it all into that tiny space.

Be sure to list the name and contact information for each of your supervisors!

Section 9 asks for education or cross-experience substitution for hands-on experience. You may substitute up to half of the hands-on experience requirement with training units, relevant college degree or credits, and/or cross-experience (section 100.12 of Regulation 100). Copies of transcripts and certifications must be included with the application.

Section 10 asks whether you are currently a Colorado Certified Facility Operator; if you are not then you may skip over this section.

Section 11 is where you would request an accommodation under the Americans with Disabilities Act.

Section 12 is for your signature. It would be wise for you to read the affirmation you make by signing the application!

I hope that this answers your question about completing the application, however, should you have any further questions please feel free to call Lori Billeisen, Facility Operator Program at 303-692-3510. Regulation 100 is where you will find specific information about the education and experience requirements for the varying levels of certification. It may be downloaded at http://www.cdphe.state.co.us/op/ocb/index.html.

Thank you for your valuable question and good luck to you on the exam!

Sincerely, Aqua Man

If you have any questions for Aqua Man, please send them to comments.wqcd@state.co.us. Enter "Safe Drinking Water Newsletter" as the subject.

Comings "N" Goings

This section provides information on staff changes within the Safe Drinking Water Program. Listed are changes from April 2009 through the end of May 2010.

Comings

Compliance Assurance Section	Financial Solutions Unit	Engineering
Alysia Moores 10/01/2009	Elizabeth Pine 09/28/2009	Andrea Gardiner 06/01/2009
Compliance Technician	General Professional	Professional Engineer
Melissa McClain 11/16/2009	Margo Cheroutes 01/25/2010	Tyson Ingels 08/31/2009
Environmental Protection Specialist	Administrative Assistant	Lead Drinking Water Engineer
Michael Sherry 11/16/2009		Nicole Rollo 10/13/2009
Drinking Water Rule Manager		Administrative Assistant
Joe Campbell 12/01/2009		Daniel Romero 03/22/2010
Environmental Protection Specialist		Sanitary Survey Follow-up Technician
Robert Pohl 12/01/2009		
Compliance Technician		
Russell Zigler 03/01/2010		
Legal Assistant		

Goings

Compliance Assurance Section	Financial Solutions Unit	Engineering
Jeremy Simmons 08/21/2009	Carolyn Schachterle 05/31/2010	Tim Vrudny 07/10/2009
Drinking Water Rule Manager	Unit Manager	Professional Engineer
Emily Clark 01/04/2010		Kevin Keenan 11/30/2009
Drinking Water Rule Manager		Environmental Protection Specialist
		William Smith 12/31/2009
		Engineering and Physical Sciences Technician
		Gregory Brand 05/31/2010
		Professional Engineer

Colorado Department of Public Health and Environment

Water Quality Control Division
Drinking Water Compliance Assurance

Contact Information for Drinking Water Questions

Total Coliform Positive Report Line 303-692-3308

Groundwater (GW)- COMMUNITY (COMM) and NON-TRANSIENT, NON-COMMUNITY (NTNC):

Bryan Pilson – Compliance Specialist	303-692-3318
Michael Sherry – Compliance Intern	303-692-3325
Bob Pohl - Compliance Technician	303-692-3254

Groundwater (GW)- TRANSIENT, NON-COMMUNITY (TNC):

Bryan Pickle - Compliance Specialist	303-692-3527
Desiree Jones - Compliance Technician	303-692-3538

Surface Water (SW) and Groundwater Under the Direct Influence of Surface Water (GWUDI)- COMM, TNC and NTNC:

Serenity Valdez - Compliance Specialist	303-692-3519
Melissa McClain - Compliance Intern	303-692-3445
Aly Moores - Compliance Technician	303-692-3163

Early Implementation – Stage 2 Disinfectants/Disinfection Byproducts Rule and Long Term 2 Enhanced Surface Water Treatment Rule:

Julie Conroy - Early Implementation	970-248-7158

New Systems and Database Updates (changes in source, treatment, etc.):

Erica Kannely	303-692-3543

Enforcement:

Jackie Whelan – Enforcement Specialist	303-692-3617
Lauren Worley – Enforcement Specialist	303-692-3547

General Assistance (including forms, schedules, & other printed materials and changes to contact information):

Laurie Findlay	303-692-3556 or 303-692-3541

4300 Cherry Creek Drive South, Denver CO 80246-1530
Fax 303-758-1398
1-800-886-7689 (ext. = last four digits of individuals direct line)

Visit Us on the Web

- Follow us on Twitter! http://twitter.com/CO_SafeWater.
- Subscribe to the program's RSS feed http://twitter.com/statuses/user_timeline/35859511.rss.
- The Drinking Water Program's home page Web address is www.cdphe.state.co.us/wq/drinkingwater/index.html.
- For training opportunities, please visit the division's website at www.cdphe.state.co.us/wq/drinkingwater/trainingevents.html.
- To access Aqua Talk online, go to www.cdphe.state.co.us/wq/drinkingwater/QuickLinks.html.
- To access the district engineer county listing, go to www.cdphe.state.co.us/wq/engineering/pdf/County_List.pdf.
- To access the contact list for drinking water rules, go to www.cdphe.state.co.us/wq/drinkingwater/pdf/CAS_Contact_List.pdf.

Aqua Talk Newsletter Information

The following people contributed to the production of this issue of Aqua Talk:
Ron Falco, Sharon Williams, Gloria Duran, Mike Bacon, Lisa Pine, Lori Moore, Bret Icenogle, Paul Kim and Melissa McClain.

We welcome any comments, questions, story ideas, articles and photographs submitted for publication. Please address correspondence to Gloria Duran, Aqua Talk Newsletter, Water Quality Control Division, 4300 Cherry Creek Dr. S., B2, Denver, CO 80246-1530 or e-mail 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 http://www.cdphe.state.co.us/wq/drinkingwater/QuickLinks.html.

Colorado Department
of Public Health
and Environment

Safe Drinking Water Program

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Editor: Gloria M. Duran

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