

On the Water Front

Rocky Mountain Water Quality Analysts Association

Third Quarter 2012

Cherry Creek's Big Storm Event of 2012 - By Natalie Love, GEI Consultants



CT-1 during the storm (6/7/12 10:41 AM)



CT-1 after the storm (6/22/12)

The night of June 6, 2012, many Metro Denver residents awoke to the roar of thunder, clickety-clack of hail and pounding rain. Since the first round of storms went through the metro-area only a few hours earlier, it wasn't a complete surprise. As expected, the next morning, many people were left calling their insurance companies about the damage to cars and roofs. For a few water quality scientists, another opportunity presented itself, so we headed out to the field to collect storm samples.

Since 1992, GEI Consultants, Inc. (GEI) has collected water quality samples for the Cherry Creek Basin Water Quality Authority (CCBWQA). During that time, GEI has collected both base flow water quality data as well as storm water quality and flow data. This data is used to help assess the watershed nutrient inputs to Cherry Creek Reservoir as well as to evaluate the effectiveness of the CCBWQA's Pollutant Reduction Facilities (PRFs) at reducing the suspended solids and nutrient loads to the reservoir.

PRFs are best management practices used to control the negative impacts of stormwater by applying engineering techniques that use the natural landscape features to stabilize and promote infiltration to maintain water quality. So, equipped with waders, sampling gear and a camera, I visited our six stream monitoring sites in the Cherry Creek Watershed to collect stormwater samples.

Upon arriving at the first site on Cottonwood Creek, I was astonished. The staff gage measuring water level was completely inundated. The water level had also clearly reached the sampler box housing and the automated water sampler. Despite

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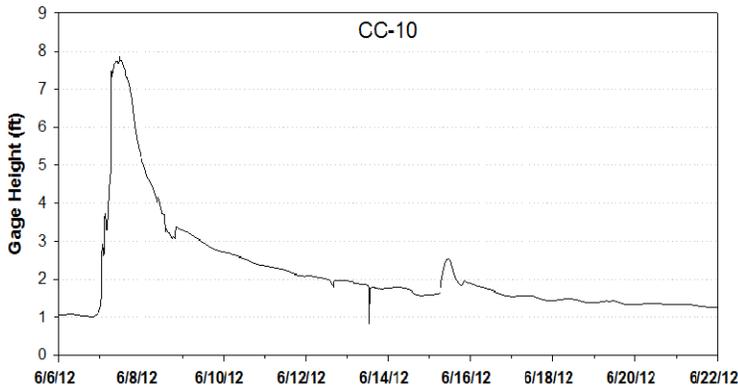
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Storms....

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bobbing in a foot of water, the water sampler did its job. I took the samples back to the lab and composited the samples collected over a 6-hour period. I also prepared the "first flush" sample containing the bulk of sediment and nutrients that hit the creek.

Continuing onto the next site, it was clear that this storm was much larger than the average storm observed in the watershed. Typical storm events generate between 0.25in and 1.5in of rainfall. This storm, however, was recorded as 2.72in at nearby Centennial Airport. Even more amazing was the short



Sample site CC-10 flow recordings showing the short duration and high magnitude of the storm.

and intense duration of this storm event. One sampling site recorded an increase in water depth of 2.8ft in only a 30 minute period. Typically this change is observed over the course of an entire two hour storm. The magnitude? Based on hard engineering points in the Cottonwood Creek Reclamation Reach, the maximum discharge reached approximately 1,600 cfs, which equates to roughly a ten year storm event for this watershed (once every ten years).

And what about the power of the storm? The power of the water was clearly evident at another site on Cottonwood Creek. Each site is equipped with a pressure transducer probe that measures water level. The probe is connected to rebar in the stream channel. Additionally, the cord is anchored to multiple rebar points, and the other end is connected to the automated ISCO Sampler. Once the storm flow subsided, we found the probe still attached to the rebar but the cord ripped right off the probe, leaving a gap in the hydrograph for this site.

Wow what a storm!



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RMWQAA will be hosting

Lab Academy

January 24, 2013

9:00 am to 3:00 pm

City of Broomfield

Zang Spur Ballroom

Fellow analysts will do short presentations on topics they are working on for their own labs, cities, and districts.

If you have a topic you would like to share, please contact
Stephen Ellis at
sellis@sacwdsd.org

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RMWQAA Members Tour ERA

By Blair Corning, SACWSD



RMWQAA members at the new ERA Laboratory in Golden.

Rocky Mountain Water Quality Analysts Association (RMWQAA) members know that ERA (now Waters) provides DMRWQ and PT study samples to laboratories, but they don't know what goes on behind the scenes. On August 31, 2012, RMWQAA members took a look inside the new Golden, Colorado facility. The tour was hosted by Rick Persichitte an RMWQAA member and ERA's Western Region Sales Manager.

The tour started with an informative presentation in ERA's training room. Shawn Kessner, ERA's Senior Product Specialist, presented on ERA's mission, products, and corporate philosophy. Of particular interest to many attendees was the data analysis features available online to ERA customers. Through the website, individuals can not only retrieve their own laboratory historical trends but can use the feature to make inferences about particular methods. The application also allows for the viewing and charting of entire study results to allow for a big-picture look at performance indicators. RMWQAA member Elvin Arrance said he found the tour beneficial; "especially the aspect utilizing their website and the study statistical analysis because it can be a valuable tool in answering study-related questions."

A tour of ERA's data, production, laboratory, and shipping facilities was next. Analysts learned that ERA was recently bought by Waters. This change has not altered ERA's focus on the customer – They'll help with method troubleshooting over the phone.

A focus on employees and the community was also witnessed during the tour by the "sweet" weight room and huge pile of shoes collected for a community service project ERA supports.

Some interesting things encountered or learned on the tour include:

- The smell of black pepper permeating one of the rooms on the tour. – Turns out ERA creates standards for microbiological tolerances for spices.
- The cool 1960's feel brought on by the tie-dyed lab coats issued to tour participants. (See photo)
- *Waters*, the company that bought ERA is a leader in the pharmaceutical and life science chromatography equipment business.
- A huge shipping and order filling room staffed by only two people who receive needed help during crunch-time events such as the annual DMRQA study.

Thanks go out to Rick Persichitte and Stephen Ellis, RMWQAA Chair, for organizing and coordinating the tour of ERA. It was a great break on a Friday afternoon that proved to be educational and interesting. Talk was overheard about a brewery lab tour for the next outing ... I wonder what they'll have us wear there? Certainly not lab coats and safety glasses!

Members pose in some stylish lab coats and caps from the summer of love





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Friday, October 12, 2012

Sampling Training hosted by USGS and Littleton/Englewood WWTP

Training will be held at Littleton/Englewood WWTP

2900 S Platte River Drive

9:00-2:45

Join us at LE and on the banks of the South Platte River in Englewood to learn about sampling from USGS and "Dr" Phil. You will receive an intensive introduction into basic and advanced water sampling by Katie Walton-Day and Karla Burnley who make their living sampling for USGS.

Topics may include but are not limited to:

- Planning and preparation for field water quality activities
 - Surface water site selection
 - Surface water quality sampling methods - grab and isokinetic
 - Procedures for collecting representative contamination free samples
 - A review of the different kinds of surface water samplers
 - A review of sample storage containers, processing equipment
- and supplies needed in the field, including storage, splitters, filtration and homebuilt processing chambers
 - The clean hands-dirty hands protocol
 - Quality assurance and control
 - Safety (some incredible stuff that we typically don't have to deal with on our river)
 - An introduction into invasive species - identification and control

Name: _____ Date: _____

Employer: _____

Address: _____

E-mail Address: _____

Phone Number: _____ Title: _____

Check the Appropriate Registration:

- () \$30 Sampling training (member)
- () \$45 Non-member (includes membership or renewal)
- () Request Vegetarian Lunch

_____ Total

The costs include all materials, lunch, and snacks.

Please submit a separate registration for each attendee
By mail to:

RMWQAA
PO Box 29407
Thornton, CO 80229

Or Register with Paypal on the website
www.rmwqaa.org

Registrations due **Friday, October 5, 2012**

Class sizes are limited, so please register early.

To reserve your space contact Stephen Ellis at 720-206-0491 or Sellis@sacwsd.org

The agenda can be found on the RMWQAA website.





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**The 2012 RMWQAA
Certification Exams**

Levels I, II, and III will be held
Friday, October 12, 2012 at

Griswold WTP
 14201 E. Hampden Ave
 Aurora, CO 80014
 8:30-10:30 AM

Applications should be mailed to:
 Adele Rucker
 Wemlinger WTP
 18301 E. Quincy Avenue
 Aurora, CO 80015

Applications must be received by
Monday, October 1 2012

Exam Topics and Study Materials can be
 found at our temporary website
www.rmwqaa.org

Quagmire's



**C
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CDPHE approved the use of Hach 830/832 method for ammonia for the City of Loveland.
So, what does this mean for my lab?

Dear Quagmire,

My lab has been using SM4500-NH3 D, the ion selective method, to measure ammonia. Sometimes we have a lot of calibration issues and waste time. What can I do? Sincerely, Lab Rat

Well, Lab Rat, stop your complaining and take a page from the City of Loveland's standard operating procedures. This will save you valuable time and reduce your frustration. Nick Marusin, an analyst in Loveland's WQ Lab took on the task of the validation study for the Hach TNTk+ method 830/832. Now these are not the little Hach meters used for quick colorimetric tests. The TNTplus works on the DR5000, DR6000, DR3900 or the DR2800 (portable) and uses small vials with freeze-dried reagent sealed in the cap. There is barcode recognition, so that the correct method is always used.

The length of time for a validation study depends on staffing. You must do an MDL determination (7 samples) and a QL determination, which can be incorporated into your MDL study. Then 10 days of side by side analysis must be completed with the Hach method and your current method. The Initial Precision and Recovery study consisted of the analysis of four replicates of a 1.0 mg/L NH₃N solution with both the TNTplus and your current method. Nick spaced this study over 2 months, as time allowed with his other duties, with an additional 8 hours to compile data and write a short validation report. This time could be more or less, depending on time available to lab staff.

Nick says validation "was much less painful than I had anticipated."

Since the Hach method was rated as an equivalent

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Quagmire's Corner....

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method approval was needed from the state, but not EPA. A letter and copy of the validation study were sent to our CDPHE enforcement technician. In response, we received an email confirming with the Permits Section, that the TNT method appeared to meet the requirements under 40 CFR Part 136.6 for method modification as an "equivalent" method. CDPHE approved the use of the Hach method without having to submit an actual Alternate Test Procedure request to the EPA. The City of Loveland could begin using the Hach TNT plus 830 and 832 for analysis of total ammonia. The letter is kept on file with the permit and other pertinent data in case of question.

Derek Walker (Hach) gave a presentation at our last RMWQAA conference and will be giving another at the AWWA conference in Copper, about the use of modified methods in the NPDES permit program with the City of Loveland being their Colorado Case Study. And since Loveland paved the way for water labs, you should give it a try and validate the new method. If you have more in-depth questions, contact Ruth Hecker at the City of Loveland's WQ Laboratory at Ruth.Hecker@cityofloveland.org



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