

# NC Drinking Water Laboratory Certification Update

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## July 2009

### New Auditing Process

In order to report results to the North Carolina Public Water Supply Section (PWSS) on samples collected for one of the various rules under the Safe Drinking Water Act, a laboratory must be approved by the Laboratory Certification Office. In addition to completion of the required performance evaluation samples, a laboratory must successfully pass an audit of the laboratory operations, and must submit an acceptable response to any deviations noted.

In order to more thoroughly evaluate laboratory operations, in addition to the on-site visit the Certification Office is now closely reviewing Standard Operating Procedures, the laboratory Quality Assurance Plan, qualification packets and analytical data generated on compliance monitoring samples. Although it is advantageous to perform these data reviews before visiting the laboratory so that any questions can be discussed, these may be completed after the on-site evaluation.

The on-site visit allows the Certification staff the opportunity to verify that the facility and equipment are sufficient to meet the analytical requirements, and to discuss technical issues with the laboratory staff. The purpose of expanding the audit process is to further assure that all laboratories certified by our state are meeting the same performance criteria. Audit reports are often more detailed than in the past, and responses will typically require additional work on the laboratory staff; however sufficient time will be allowed to adequately address any deviations noted. Please be prepared to provide the information requested by the Certification Office and as always feel free to call and discuss any finding in your audit report.

### PWS Reporting

**Method Codes:** In 2008 the Certification Office ceased use of the 3-digit method codes and implemented reference to the actual method used by the laboratory to report compliance data. The new codes were provided to each laboratory mid-2008 with their certificate document received following payment of the annual certification fee. It has come to our attention that many laboratories continue to use the 3-digit system. ***Use of the new method codes must be implemented as soon as possible. When the PWSS moves to the next version of SDWIS, the old codes will no longer be recognized.***

**Electronic reporting:** The date for the start of electronic reporting to PWSS has been extended. As currently planned large laboratory facilities will be required to report electronically December 2009, while the smaller laboratories will not be using the new system until January 2010. *Please be aware that*

*electronic reporting will not be required until the PWSS has developed the necessary software programs.* Contact our office if you wish to assist PWSS as a beta test site.

**Violation Candidate List:** One to two weeks before violation letters are mailed, the PWSS Rule Managers for nitrate and bacteriology will prepare a Violation Candidate List that is then made available to the analytical laboratories for review. This provides an opportunity for submission of any missing client reports BEFORE the actual violation letters are generated. If you are not currently on the distribution list for this information, please email Derek Lewis at [Derek.Lewis@ncdemr.gov](mailto:Derek.Lewis@ncdemr.gov) and request that your laboratory be included.

**Analyte codes:** Although seldom used in the past for Total Coliform Rule (TCR) reporting, laboratories are encouraged to start using the assigned analyte codes for total coliform, fecal coliform and *E. coli*. This will become more important in the future when testing under the Ground Water Rule begins and TCR and GWR analyses may overlap. The analyte code for total coliform is 3100, fecal coliform 3013 and *E. coli* 3014.

### Analytical Methods

**EPA 200.5:** The EPA recently approved the use of ICP-OES (axial viewed) for analysis of drinking water compliance samples. The following has been offered by EPA as clarification between 200.5 and the more commonly used ICP method 200.7.

While a radial configuration is more matrix tolerant, axial is recognized as a more sensitive technique. Method 200.7 was first developed in 1982 and although no reference to configuration was stated, it was more likely developed using radial. It very clearly states in 200.5, developed in 2003, that only axially viewed plasma can be analyzed with this procedure. This method requires digestion and concentration of the sample, but is an approved ICP method for Selenium, Arsenic, Lead and Antimony. Since the drinking water program is analyte/method specific, for certification a laboratory must analyze proficiency test samples and submit the IDOC requirements stated in the method.

**Graphite furnace testing:** The Certification Office recently completed a review and comparison of the two graphite furnace techniques commonly used by laboratories certified by our office, SM 3113B and EPA 200.9. This was in response to the finding that many

laboratories were using SM 3113B for the analysis of Thallium, which has not been approved by the EPA for this testing. If you would like a copy of this one-page

document comparing these methods, please contact the Certification Office.

**Water Quality Parameters:** As you are aware, additional testing may be required when lead and/or copper levels are exceeded during routine monitoring. This testing, known as Water Quality Parameters (WQP), can include pH, alkalinity, orthophosphate, silica, conductivity and water temperature. The number of samples collected depends on the size of the system and must be representative of all water sources.

The Code of Federal Regulations states that the WQP testing noted above may be conducted by any person acceptable to the State, but does require that only approved methods be used. The Certification Office is charged with assuring that only these approved methods are utilized and is working with the PWSS staff and the laboratory community to accomplish this task. A listing of these methods has been prepared by our office and can be provided upon request. In order for the data to be acceptable to the PWSS, the methods used must be provided to the Certification Office in order to input them into the laboratory component of SDWIS.

**Heterotrophic Plate Count:** For those laboratories certified for HPC testing, the Certification Office would like to bring the following items to your attention. First, duplicate plates of each dilution **MUST** be tested with both the pour plate and Simplate techniques. When using pour plates, it is acceptable to place 1.0 and 0.1 mL of sample into the Petri dish, thus eliminating the need for dilution water. When selecting the dilutions to be used, a laboratory must be able to report up to 500 cfu or MPN/mL. This level is used by the regional engineers to verify sufficient disinfectant in a public water system. Lastly, SDWIS does not allow reporting of less than (<) values, therefore a 0 must be used. Although this is not technically correct, it will be acceptable to report a 0; however any bench sheets reviewed by our office should reflect the actual findings.

## **Ground Water Rule**

In 2006 the EPA released the Ground Water Rule (GWR) which will require fecal indicator testing of ground water supplies for either assessment or triggered monitoring beginning December 2009. The North Carolina Public Water Supply Section will allow the facility to determine the fecal indicator to be used: *E. coli*, *Enterococci* or Coliphage. Reporting of this data will be in a presence/absence format. In order to be certified for this testing, a laboratory must analyze proficiency evaluation samples by the method to be used

to report this compliance data. Membrane filter, multiple tube fermentation and enzymatic methods have

been approved for *E. coli* and *Enterococci* fecal indicators.

For laboratories who will be reporting *E. coli* and who are presently certified for distribution sample testing by an enzymatic method approved for both TCR and GWR samples, no further PT testing will be required. Due to the lack of presence/absence samples for *Enterococci*, the Certification Office will be preparing proficiency samples for this certification. Please contact our office if you wish to discuss this program.

## **Proficiency Test (PT) Samples**

Important notes on PT samples. When analyzing by two or more coliform methods, the vendors are now sending separate sets, each with a corresponding report form. Data must be reported accordingly. For Radiochemical testing, please verify that the vendor is approved for this analyte group. At the current time only ERA and the State of New York are approved vendors for WS Rads studies.

## **Autoclaves**

The Certification Office has found that some laboratories have purchased autoclave units that will not meet the specifications of the EPA drinking water laboratory program. To be acceptable, an autoclave must have a functioning temperature and pressure gauge, must be able to maintain 15 lbs. of pressure at 121°C, must have a timing mechanism which can be monitored externally, and must be able to complete a 12 – 15 minute sterilization cycle in 45 minutes. Any autoclave that does not meet these requirements is not acceptable to the drinking water program.

## **Remaining 2009 workshops**

*Process Control Chemistry*, Raleigh August 18 – 21  
*Bacteriological Methods for the Examination of Drinking Water*, Raleigh November 3 – 6

Registration form: <http://slph.ncpublichealth.com>. (Select the Environmental workshop form under Laboratory Improvement). Note: Payment in advance with registration is no longer required.

## **Email address change**

The email addresses for all certification staff will be changing soon. Mail will be routed from the current address for a 6-month period; however please look for the announcement of our new addresses. Although not activated yet, the address will be: [firstname.lastname@dhhs.nc.gov](mailto:firstname.lastname@dhhs.nc.gov).

*This document has been prepared solely for use by water plants, health departments and commercial laboratories certified by the North Carolina Drinking Water Laboratory Certification Office, State Laboratory of Public Health, to perform compliance testing on public water supply samples.*