



Proficiency Testing Requirements South Carolina Department of Health and Environmental Control Office of Environmental Laboratory Certification

Proficiency Testing (PT) samples are used to measure a laboratory's proficiency in performing a particular method for specified parameters/analytes. Each certified laboratory must participate and receive acceptable results for the Water Supply (WS) and/or Water Pollution (WP) studies annually to maintain certification for Safe Drinking Water Act, Clean Water Act and Solid and Hazardous Wastes methods/parameters/analytes. WS studies are analyzed for the Safe Drinking Water Act and WP studies are analyzed to report PT samples for Clean Water Act (wastewater) and Solid and Hazardous Waste aqueous methods. The laboratory must obtain PT samples that are part of an official study obtained from an approved PT provider. A list of approved PT providers and required PT parameters for South Carolina can be located on our website at www.scdhec.gov/labcert.

PT Schedule

Acceptable PT sample results for the laboratory must be received directly from the PT vendor by December 31st each year for the Water Supply (WS) and/or Water Pollution (WP) studies. The study the laboratory participates in must begin and end in the same calendar year with the results received in our Office by December 31 of that year. The laboratory must designate on the PT results submitted to the provider that SC is to receive a copy of the report. **The PT provider must submit these study results to this Office.** We cannot accept PT results sent by the laboratory.

Our Office will not accept any PT study results after the calendar year (December 31) for the previous calendar year. If the results are not received from the PT provider(s) by December 31st, the laboratory will be decertified for the applicable parameters and must reapply for certification for the affected parameters. If this Office was designated to receive a PT report and there was an error on the PT provider's part, then a letter from the PT provider identifying the error that occurred must be submitted for review.

All PT samples must be part of an official WS and/or WP study. Supplemental PT samples (such as Quick Response, RapidReturn, and PT Express) are not acceptable. The PT samples must be formulated according to the EPA Criteria Document published December 1998 and the TNI/NELAP Fields of Proficiency Testing (FoPT) tables. A list of approved PT providers is available on our website or on the TNI website at <http://nelac-institute.org/content/NEPTP/ptproviders.php>.

Reporting Results to PT provider

Results must be sent to the provider prior to the study close date. Late results submitted to the provider will not be accepted. Most providers make results available immediately following the study close date so that laboratories can grade their own data and order repeat samples without waiting for the final reports to be issued. Because many study results are released immediately, data reported to the PT provider after the close of the study (even if the PT provider accepts and grades the data) cannot be used for certification and will be viewed as "Unacceptable" by this Office. Any changes to any of the data reported to the vendor after the close of the study will result in a revised report and will not be accepted for certification purposes. **Be sure that the data is correctly reported at the time that it is submitted to the PT provider.**

When completing the reporting forms to be sent to the PT provider, you must indicate that the results are to be sent directly to this Office. All of the PT providers have the Office address and will send the reports here. If there are any questions regarding this, please contact the PT provider to ensure that they have the Office address.

The laboratory's EPA Lab Code and the State Lab ID number must also be included. Please be sure to include this information. If it is not included, the PT results may be inadvertently credited to the wrong laboratory and/or your laboratory may not get credit for participating in a PT Study. If you do not know or are unsure of your EPA Lab Code and/or State Lab ID numbers, please contact our Office for assistance.

Correct Method Reporting

When completing the reporting forms, be sure to include the correct method number(s) being used, including the year of approval. It is critical that the proper method number be referenced since PT samples are required for each method (as required by the EPA) for which your laboratory is certified. If a PT report is received with an incorrect method reported, the PT will be unacceptable, and a new PT sample must be analyzed. To ensure that you are reporting the correct and complete method, review your certificate. If you are using a method that is not listed on your certificate, please contact this Office so that your certificate can be updated.

The laboratory must report acceptable PT results for each certified method. Results for one method cannot be substituted for another method. Although some wastewater and solid and hazardous waste methods may use the same technology, each method must still be reported. The SW-846 methods will not be accepted in lieu of the wastewater methods since there are different quality control requirements between these methods and the wastewater methods are required for wastewater compliance reporting.

The revision letter and year of approval for all methods must be noted to ensure the PT sample was analyzed according to the current revision. For example, EPA Method 8260 will not be accepted, since EPA Method 8260D (2018) is the most current revision available for use through the Federal Register. The methods reported to the PT provider must match those on your South Carolina certificate. **Failure to report the correct method number, correct revision letter, and year of approval will result in a "Unacceptable" result for that parameter.**

The method number reported must include the entire method reference as is written on your certificate. For instance, for pH, include the entire method whether it is EPA Method 150.1 (1983) or SM 4500HB-2011. Incomplete method designations such as SM 4500, SM 4500B, or SM 4500HB are not correct and will not be accepted by this Office. Please contact this Office with any questions concerning correct method reporting,

PT results must also be reported to the PT provider using the correct units of measure. For example, low-level residual chlorine PT results for the WP study must be reported with the unit of measure $\mu\text{g/L}$ instead of mg/L . It is important for the laboratory to convert their results to the correct units of measure, if necessary, before reporting them to the PT provider.

Remember, reports revised after the close of the study cannot be accepted.

Proficiency Testing Analysis

The laboratory must not send a PT sample or any portion of a PT sample to another laboratory for any analysis. Laboratory management or other staff must not communicate with any individual at another laboratory (including intra-company communication) concerning the PT samples. If an entity has multiple laboratories certified, it is strongly recommended that different studies be performed to prevent any sharing of sample results. This would also apply to operators working at multiple certified laboratories. If an analyst works at two locations, they must analyze one sample at the first location using all of the equipment and reagents at the first location. They must then order and analyze another sample at the second location using the equipment and reagents at the second location. Different PT studies must be analyzed to prevent comparison of results.

It is not acceptable to report one result for any PT sample for two different laboratories. PT samples must be obtained, analyzed, and reported by each individual certified laboratory. Individual certified laboratories are determined by their state laboratory ID number and associated certificate(s). If separate ID numbers (5 numerical digits) and certificates are issued by this Office, then separate PT samples are required.

PT samples must be handled (i.e., managed, analyzed, reported) in the same manner as actual environmental samples using the same staff, facilities, procedure(s), and equipment. When analyzing the PT sample, the laboratory must use the same calibration, laboratory quality control and acceptance criteria, sequence of analytical steps, number of replicates, and other standard operating procedures used in analyzing routine samples. Complete calibration and analysis records must be maintained for the PT samples to provide traceability of results.

All PT sample analyses must be recorded and maintained; preferably in the daily analysis records. This would serve as the permanent laboratory record. Analysis results for the PT samples must be reported as if they are actual compliance samples using the PT study number as the sample ID. A copy of the report that sent to the PT provider for grading should be maintained so that if problems arise, the laboratory will have a record of what was submitted to the PT provider.

The PT results received from the provider must document the correct SC Lab ID# in addition to the correct EPA Lab Code. The correct method, as it appears on your parameter certificate, must be reported with your PT result. When "unacceptable" results are obtained for a PT sample, corrective action must be performed and corrective action results submitted to our Office within 30 days of the failure. **Remember our Office cannot accept revised PT reports received from the PT provider, unless there is a reporting error by the PT provider and the PT provider submits documentation to this effect.**

Additional Reporting Criteria from TNI

The National Environmental Laboratory Accreditation Program (NELAP) standard changes have resulted in changes to the PT provider's report. The PT reports now document the analyst as well as the analysis date for each PT result. The PT providers are now including the Standard Method reference with the year of approval. It is important to select the correct Standard Method reference and year of approval for the method.

Residual Chlorine – Safe Drinking Water Act

Drinking Water PTs for residual chlorine analyses are performed as total and/or free chlorine. These are considered two different procedures. If your laboratory does not perform free residual chlorine, you will not be required to report a result for free residual chlorine. If a laboratory analyzes PT samples for total and free chlorine and one or both of the results is unacceptable, the PT result for residual chlorine will be noted as "unacceptable". This will require the laboratory to perform another PT for the failed analysis.

Low-Level Residual Chlorine – Clean Water Act

All laboratories certified for residual chlorine for the Clean Water Act (wastewater) must submit an acceptable PT study result for low-level total residual chlorine to maintain certification for this parameter. The PT sample may range in concentration from 0.075 to 0.25 mg/L (75 to 250 ug/L). PT results must be reported to the PT provider using the correct units of measure (ug/L). This concentration range will be more reflective of actual wastewater samples as well as the South Carolina PQL of 0.05 mg/L. **We will not accept the regular total residual chlorine PT sample in lieu of the low-level residual chlorine sample.**

Microbiology

Water Supply – Presence/Absence (P/A)

For Total Coliform/*E. coli* (P/A) samples, results are reported as present or absent. This also applies to membrane filter methods or other approved methods. All ten bottles that come with a PT sample are to be analyzed using the same method. If the laboratory is certified for multiple methods, then a separate sample (10 bottles) must be analyzed by each method. Results are to be reported for total coliform and *E. coli* for each sample (10 bottles).

If the laboratory is using the membrane filter method, the analyst must take the samples through the verification process to confirm the presence or absence of total coliform. Verify all total coliform positive samples for the presence or absence of *E. coli*. These records must be maintained by the laboratory.

Water Supply – Enumeration

Laboratories that are certified for microbiological enumeration methods such as membrane filtration (MF) and most probable number (MPN) under the Safe Drinking Water Act are now required to analyze a WS PT sample for enumeration in addition to the P/A PT. If your laboratory is certified for either total coliform (MF), total coliform (MPN), total coliform/*E. coli* (MPN), or any *E. coli* enumeration method under the Safe Drinking Water Act, then an additional PT for enumeration must be analyzed. Laboratories certified for total coliform/*E. coli* (MPN) must report enumerated results for both total coliform and *E. coli*.

Also remember that fecal coliform and *E. coli* are not the same. Laboratories certified for total coliform/*E. coli* must not report *E. coli* results as fecal coliform. Tests are specific as to the type of bacteria identified.

For the Water Supply Study, heterotrophic bacteria are analyzed using one sample. Results are reported as the number of heterotrophic bacteria observed per mL of sample (CFU/mL). A separate sample is required for each method for which the laboratory is certified.

Water Pollution

For the Water Pollution study, one sample is analyzed for each method and bacterial parameter. The results are reported as a number of colonies per 100mL (CFU/100mL) for membrane filtration methods or as MPN/100mL for the Most Probable Number (MPN) methods. The parameters covered under the WP microbiology are total coliforms, fecal coliforms, *E. coli*, and *Enterococcus*.

Whole Effluent Toxicity (WET)

Certified laboratories are required to participate in the DMR-QA annually. If the laboratory receives an unacceptable result on the DMR-QA WET sample, the laboratory must participate in a supplemental PT study and submit the associated reference toxicant test results to satisfy the annual PT requirement for WET. This only applies to the WET parameters since there is only one official study available each calendar year. Supplemental PT studies are not allowed for any other parameters. Failure to participate in the DMR-QA study will result in an “unacceptable” result for Whole Effluent Toxicity.

Corrective Action Required for Unacceptable PT Results

Laboratories are required to submit corrective action for all unacceptable PT results. The corrective action required will be a letter identifying why the failure occurred, what was done to resolve the problem, and the participation in another PT study and receive acceptable results. Letters of corrective action must be submitted within 30 days upon receipt of the final PT report for which an “unacceptable” result was obtained. Acceptable results for any failed parameters must be received by our Office from the PT provider by December 31st.

EPA Lab Code

Each laboratory must use their assigned EPA Lab Code on all PT reporting forms submitted to their PT provider. The EPA Lab Code ensures the PT results are credited to the correct laboratory. The EPA Lab Codes are assigned by the USEPA. To obtain an EPA Lab Code, email Jeffrey Wilmoth at EPA Region 4 Wilmoth.Jeffrey@epa.gov with the subject heading – Request for EPA Lab Code. Provide the following information in the email:

Lab Name

Division

Contact Name

Street Address

PO Box (if applicable)

City

State

Zip

Phone

Email

Which type of PT studies do you participate in? WS WP DMRQA

PT results reported without the correct EPA Lab Code may not be accepted by our Office, since the results cannot be credited to appropriate facility or laboratory.

Questions concerning proficiency testing can be submitted by e-mail using the address labcerthelp@dhec.sc.gov or by calling (803)896-0970.