Sample Rejection and Invalidation for Drinking Water Systems and Certified Laboratories

Division of Water Supply and Geoscience

Under the guidance of the National Primary Drinking Water Regulations (NPDWR) (40CFR141), the New Jersey Department of Environmental Protection (DEP), Division of Water Supply and Geoscience (DWSG) reviews requests from drinking water systems and certified laboratories regarding the validity of submitted compliance and monitoring sample analytical results. The purpose of this document is to highlight the pathways of determining sample validation employed by the DWSG and outline specific criteria for eligibility based on analyte.

1. Suspected Errors in Sampling Protocol.

The DWSG **will not** invalidate analytical results on the grounds of suspected or documented improper sampling. It is the responsibility of the water system and laboratory to ensure quality control and assurance in sampling protocol based on the sampling requirements outlined in the EPA's analytical methods for the targeted analytes and from their Quality Assurance Program Plan (QAPP). For further information regarding QAPPs and quality control go to the Office of Quality Assurance.

If a water system or laboratory suspects an error in sampling, the DWSG advises that the laboratory **does not** analyze the sample and that a replacement sample be collected. Once a laboratory measures a result, the result **must** be submitted to the DEP via The New Jersey Electronic Environmental (E2) Reporting System. The DWSG recommends that samples be collected in the beginning of a compliance period in case a replacement sample must be collected to allow sufficient time for submission via E2 by the end of the compliance period. It is important that a sample's chain of custody be completed with all applicable details to ensure confidence in sampling.

2. After a Result is Determined.

It is the responsibility of the laboratory to ensure that results are accurately measured and reported to E2. In the event that the laboratory suspects an error in submitted results, there are two avenues of data review determined by the type of suspected error.

2.1. Sample Rejection.

A sample rejection would occur if there was an error in entering the data into E2. Under a sample rejection, the analytical results themselves are not being questioned for error, rather for errors in data reporting. The following scenarios are commonly observed by DWSG in determining a sample rejection for all analytes:

1. A typographical error when entering data and information into E2.
2. A sample result was not meant to be submitted for compliance purposes.

3. The sample number that was used is not unique or is attributed to a different location.
4. Sample results submitted under an incorrect water system ID or sample point ID.
5. A reporting limit was submitted in place of the detection limit.

Note that this is not an exhaustive list of criteria; all requests will be reviewed for the suitability of a sample rejection. To request a sample rejection review, a laboratory must submit an E2 DWR Sample Rejection Request (DEP_DWSG-O_00057.1) to e2-dwrhelp@dep.nj.gov.

To ensure that data is being accurately reported, the DWSG advises that laboratories and water systems review the *The New Jersey Electronic Environmental (E2) Reporting System Reference Guide for Laboratories*.

2.2. Sample Invalidation.

A sample invalidation would occur if there were errors in the handling and analysis of samples post-collection by the laboratory. Under a sample invalidation, the analytical results themselves are being questioned for error. Under the NPDWR, there are different criteria that must be met to qualify a sample result for invalidation based on the target analyte. All invalidation requests must be requested by the laboratory conducting the analysis. **It is the responsibility of the laboratory to provide all evidence and supporting documentation justifying the sample invalidation claim.**

All sample invalidation inquiries should be submitted to watersupply@dep.nj.gov.

2.1.1. Invalidation of a Lead and Copper (PbCu) Tap Sample.

Per 40CFR141.86(f)(1), the DEP may invalidate a PbCu tap water sample if one of the following conditions are met:

1. The laboratory establishes that improper sample analysis caused erroneous results.
2. The DWSG determines that the sample was taken from a site that does not meet the site selection criteria (see 40CFR141.86(a) for more information).
3. The sample container was damaged in transit.
4. There is substantial reason to believe that the sample was subject to tampering.

2.1.2. Invalidation of a Total Coliform (RTCR) Sample.

Per 40CFR141.853(c)(1), DWSG may invalidate a total coliform positive RTCR sample if one of the following conditions are met:

1. The laboratory established that improper sample analysis caused the total coliform positive result.

2. The DWSG, under the basis of results of repeat samples collected as required under 40CFR141.858(a), determines that the total coliform positive sample resulted from a domestic or other non-distribution system plumbing problem.
3. The DWSG has substantial grounds to believe that a total coliform positive result is due to a circumstance or condition that does not reflect water quality in the distribution system.

If a sample (either routine or repeat) is determined to be *E. coli*-positive, **the sample will not be eligible for invalidation.**

2.1.3. Invalidation of All Other Analyte Samples.

There are no invalidation guidelines outlined in the NPDWR regarding any other analytes under regulation. For sample invalidation requests for non- PbCu or RTCR samples, the DWSG will only consider the following criteria:

1. The laboratory establishes that improper sample analysis caused the inaccurate result.
2. The sample container was damaged in transit.
3. There is substantial reason to believe that the sample was subject to tampering or laboratory contamination.

The DWSG will **not** invalidate a sample solely on the basis that its result is higher than what has been historically measured. It is the responsibility of the water system and laboratory to ensure quality control and assurance in sampling protocol based on the sampling requirements outlined in the EPA's analytical methods for the targeted analytes and from their QAPP