Delaware River Basin Commission
DELAWARE · NEW JERSEY
PENNSYLVANIA · NEW YORK
UNITED STATES OF AMERICA

Frequently Asked Questions

Point Source Nutrient Monitoring in the Delaware Estuary

Q. Are the 24-hour mean parameters required every day for the entire 2 year period?

A. No, there is no requirement to monitor any parameter every data for the entire 2 year period. For those parameters where a 24-hour mean is required (Discharge Flow, Water Temperature, Dissolved Oxygen, pH, and Specific Conductance), this mean value should correspond to the conditions during the collection of the 24-hour composite sampling for laboratory analysis of nutrients and should be spaced out across this 24-hour sampling period to the maximum extent possible (see next question). Thus, these parameters should be measured just during one 24-hour period corresponding with sample collection, either monthly or quarterly, depending on your monitoring frequency.

Q. How many measurements are needed to compute a 24-hour mean for those parameters?

A. For the 24-hour mean parameters (Discharge Flow, Water Temperature, Dissolved Oxygen, pH, and Specific Conductance), mean values can be computed from either continuous measurements across the 24-hour window or from a series of discrete samples collected across that window. If you will be collecting discrete samples for these parameters, they should ideally be spaced out across the full 24-hour sampling window. If you are unable to collect discrete or continuous samples for the full 24-hour sampling window, please contact DRBC (Erik Silldorff or Greg Cavallo) to discuss the number and timing of such discrete sample collection.

Q. Specific Conductance: Can this be measured from the composite sample?

A. Yes. Because of its stability and its long holding time (up to 28 days), Specific Conductance can be accurately and reliably measured in the 24-hour composite sample. This can serve as an alternative approach from either continuous monitoring or multiple discrete measurements through the 24-hour period when the nutrient sample is being collected.

Q. SRP: Is this just filtered orthophosphate by another name?

A. SRP (Soluble Reactive Phosphorus) is the term frequently used for the portion of phosphorus in a sample that both passes through a 0.45 μm membrane filter and is measured in the absence of any hydrolysis or digestion of the sample (see Figure 1 below). Other terms for this same analysis are "Dissolved Reactive Phosphorus" and "Dissolved Orthophosphate." But all phosphorus passing through a 0.45 μm filter is not truly "dissolved", and all the phosphorus measured with standard colorimetry and other methods is not "orthophosphate" since small fractions of condensed phosphates are also measured (Standard Methods 4500-P, 21st Ed.). As a result, different organizations call the same analytical parameter by different names, and the DRBC monitoring for SRP is a requirement to analyze phosphorus on a filtered sample (0.45 μm membrane filter) by colorimetry or other approved method (without hydrolysis or digestion). For this monitoring effort, such an analysis is referred to as SRP. Please refer to the flow diagram in Figure 1 for the analytical schematic for phorphorus based on colorimetric analysis (*note: colorimetry is not the only approved method, but the general schematic applies*).

Q. Nitrate & Nitrite: Are these analyzed separately or together?

A. Nitrite (NO_2) needs to be analyzed separately from Nitrate (NO_3). This may be different from the routine analyses conducted by various facilities or labs since NO_2 concentrations can frequently by very low and thus below detection limits. But because NO_2 will be oxidized within the Delaware Estuary, and thus represents a component of the NBOD load, NO_2 does need to be analyzed separately during this monitoring effort.

Q. Missing analytes: If a problem occurs with just one analyte or a couple of analytes from the 24-hour composite sample, should the remaining analytes be discarded and an entirely new 24-hour composite sample collected?

A. No, a problem with one analyte does not require a full re-sampling and re-analysis for every parameter. But DRBC does require a full set of 24 monthly or 8 quarterly samples for every parameter. As a result, any missing values need to be re-sampled with a separate 24-hour composite sample as soon as possible to create a complete data set for each facility. In addition, the need to calculate Total Nitrogen for each sample means that if TKN, NO_2, or NO_3 are missing, all three of these parameters need to be re-analyzed on the same sample.

Q. Filtration: Does filtration need to be done on-site at the facility, or can a contract laboratory filter once they receive the sample?

A. Samples need to be filtered with an 0.45 µm membrane filter for SRP, SKN, and NH_3 as soon as possible after sample collection. Federal Regulations (40 CFR, Part 136, Table II) specify filtration within 15 minutes for orthophosphate, and other state requirements specify immediate filtration. Acknowledging the conditions at the point of collection, DRBC requires the samples for SRP, SKN, and NH_3 be filtered on-site as soon as practicable where filtration can be conducted in a safe, clean, and secure setting.

Q. What does DRBC mean by "one electronic report"? Is this different than the hardcopy report sent to DRBC and the state agency?

A. The electronic report required as part of this monitoring effort is simply an electronic version of the hardcopy laboratory report submitted to the client as part of the data deliverable package. This electronic report will frequently be submitted as an Adobe© PDF file, but other electronic files are equally acceptable. The electronic copy of the report can be submitted either via email (send to Erik.Silldorff@drbc.state.nj.us) or can be submitted on a CD or other medium when the hardcopy report is submitted. Please note that the electronic report is separate from the Electronic Data Deliverable (EDD). The EDD is an Excel spreadsheet formatted for data submission and upload into the DRBC database (see next question).

Q. What is the Electronic Data Deliverable? Where can this be found?

A. The Electronic Data Deliverable (EDD) is a standardized Excel spreadsheet for data entry and submission during this 2-year effort. This formatting requirement for data submission provides consistent and complete data for all facilities monitoring nutrients, regardless of analytical laboratory or personnel. The Excel template can be found on the DRBC website at www.state.nj.us/drbc/nutrients/estuary-monitoring_oct2011.xls and should be used for all data submissions, either by the facility or by the contract laboratory. The Excel workbook contains a data entry sheet along with two sheets describing the data fields and the data qualifiers / flags.

DRBC Contacts for these and any other questions:

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Figure 1. Phosphorus Analytical Schematic using Colorimetry - Schematic of the phosphorus analytes available via Colorimetric determination using different sample preparations (with or without filtration) and different levels of digestion ***(note: Colorimetry is not the only approved method at 40 CFR 136)***. The two DRBC Phosphorus analytes are highlighted. *(adapted from EPA 365.1-2 and SM 4500-P [21st Ed.])*