SAMPLING TIPS FOR PFAS & 1,4-DIOXANE IN WASTEWATER

NEW YORK STATE | Department of Environmental Conservation

Pre-sampling coordination with laboratory (PFAS & 1,4-Dioxane):

- Select a laboratory. See “List of Currently Certified Laboratories” attached. This list of laboratories is being provided for convenience only. DEC does not endorse or advise on specific vendors of analytical services.
- Request sampling kits from the laboratory to complete the required sampling:
  - The lab will provide PFAS-free and 1,4-Dioxane-free containers as appropriate for the parameters to be sampled.
  - Field and equipment blanks are recommended with all samples. Only one blank should be used per day if multiple locations are sampled (e.g., one blank collected at either the influent site or effluent site per day). Facilities required to collect both PFAS and 1,4-Dioxane should collect a blank for each test. The laboratory will provide containers for the blanks and the appropriate volume of analyte-free water when ordering sample containers. Laboratory blank kits typically include analyte-free water and equivalent sized empty sample containers into which the analyte-free water will be transferred.

Precautions to minimize sample contamination:

- PFAS, and to a lesser extent 1,4-Dioxane, can be present in everyday items including personal care products, sunscreen, food packaging, fabric softeners, latex gloves, and certain water or stain-resistant clothing. Samples can be susceptible to contamination during collection, which could lead to a false positive detection.
- To minimize contamination potential when at the collection site:
  - Avoid applying personal care products like sunscreen and insect repellent.
  - Avoid opening or consuming food, specifically anything pre-packaged.
  - Wear powderless nitrile gloves.
- Without direct contact with the sample, contamination from clothing is unlikely.
  - For added precaution, avoid wearing new or unwashed clothing, Gore-Tex, clothing that is advertised as being water resistant, or clothing recently washed with fabric softener.
  - Instead, wear clothing made of cotton, polyvinyl chloride (PVC), rubber, neoprene, polyurethane, or wax-coated fabrics.

General guidance for collecting effluent samples:

- Follow any collection instructions provided by the lab.
- All samples will be grabs. Time- or flow-weighted composite samples are not required.
- Use powder-free nitrile gloves for sample collection. If the lab provides gloves, confirm the gloves are powder-free nitrile gloves.
- Collection of samples and blanks using a two-person team is highly recommended.
  - Team member 1 collects the sample and does not make contact with any other items or equipment during the collection process. Team member 1 is tasked with attaching and detaching the laboratory sample container to reach poles and swing samplers when needed.

  - Team member 2 handles all other operations in the sampling process including, but not limited to, turning sample spigots on and off, turning pumps on and off, deploying and lowering sample tubing into position, positioning the sample container using the handle end of the reach pole, sample labeling, and documentation (chain-of-custody, shipping forms, etc.).
- Use regular ice (not chemical ice packs) for sample shipment. Line the shipping container with a garbage bag and fill it almost full using regular ice interspersing the samples that are stored in Ziplock plastic bags. Knot the garbage bag to prevent leakage and place the completed chain-of-custody (COC) in a plastic bag inside the container before sealing for shipment.

Selection of a representative sampling location and time:

- A representative sample must accurately characterize the levels of a pollutant in the effluent, considering how pollutant levels may vary with time, flow, and location within the treatment system. The sampling point must be after the final finishing step in the treatment system. Facilities with process dependent flows must sample at a time when pollutant levels are expected to be average.
- •Sample contamination is highly probable when measuring PFAS; therefore, selection of a representative sampling location must also consider the potential for contamination. The sampling point should ideally be a tap or spigot at or near the final discharge point where water can be collected directly into the laboratory sample container.
  - If a tap or spigot is not available to sample the final effluent, consider the following types of locations and collection techniques (choices ranked from lowest contamination potential to highest):
  - An outfall pipe above the surface level of the receiving water
- Direct collection at arm's-length
- Direct collection using reach pole or swing sampler
  - An open channel or trough
- Direct collection at arm's-length
- Direct collection using reach pole or swing sampler
  - An open channel or trough accessible using a strainer, tubing, and peristaltic pump; this method exposes the sample to contamination from the collection system but exposure to ambient air is minimized.
  - An open channel, trough, or outfall pipe-end accessible with a stainless-steel bucket and rope or a stainless-steel dipper cup on a reach pole; this method is the least preferred as it exposes the sample to contamination from the collection vessel and the ambient air.

PFAS blank collection:

- Change gloves between sample and blank collections.
- Laboratory blank kits typically include a container of analyte-free water and an equivalent-sized empty HDPE sample container.
- Choose the appropriate type of blank to be collected. If using equipment to collect a sample (e.g., pump or other sampling vessel comes into contact with sample), follow the instructions for collecting an equipment blank. Otherwise, collect a field blank.
  - To collect a field blank open the analyte-free water and pour the contents into the empty sample container before recapping.
  - To collect an equipment blank clean sampling equipment following decontamination procedures. Open the laboratory provided analyte-free water container and run the analyte-free water through the sampling equipment as you would for collecting a sample before transferring the water into the empty sample container.

PFAS sample collection:

- From a tap or spigot: Flushing the system is not necessary in most cases, but effluent water should be run to waste for 5–10 seconds. Position the laboratory sample container under the tap or spigot, uncap, fill to the volume recommended by the laboratory, and cap.
  - Collect a field blank for this type of sample.
- From an outfall pipe above the surface level of the receiving water: If the outfall is readily accessible and within arm's-length, collect the sample as it exits the outfall pipe directly into the laboratory sample container. A reach pole or swing sampler that holds the laboratory sample container can also be used. Uncap the laboratory sample container, position it under the flowing effluent, fill to the volume recommended by the laboratory, and recap.
  - Collect a field blank for this type of sample.
- From an open channel or trough: If the channel or trough is accessible, collect the sample by dipping the laboratory sample container into the water by hand. If the channel or trough cannot be reached by hand, use a reach pole/swing sampler that the sample container can be directly attached to. Uncap the laboratory sample container, position it in the flowing effluent of the channel/trough with neck facing upstream, fill to the volume recommended by the laboratory, and recap.
  - For samples collected by hand or pole, collect a field blank.
- From an open channel or trough using a pump: The tubing and strainer must be thoroughly decontaminated prior to use. See Appendix C of the Department of Environmental Remediation Guidance Document (https://www.dec.ny.gov/docs/remediation_hudson_pdf/pfassampanaly.pdf) for the acceptable tubing materials and decontamination procedure. Lower the strainer into the water at the sample collection point. Run the pump to waste for an amount of time roughly equal to three volumes of sample. Uncap the laboratory sample container, fill to the volume recommended by the laboratory from the tubing outlet, and recap.
  - An equipment blank should be collected by pumping analyte-free water through the strainer and cleaned sample tubing into the empty blank sample container.
- From an open channel or trough using a bucket/dipper: Lower the bucket/dipper into the effluent and fill. Rinse the vessel three times with the effluent water. Retrieve the bucket/dipper the fourth time, uncap the laboratory sample container, fill to the volume recommended by the laboratory from the bucket/dipper, and recap.
  - An equipment blank should be collected by pouring analyte-free water into the cleaned bucket or dipper. The analyte-free water is then transferred to fill the empty blank sample container.

1,4-Dioxane sample and blank collection:

- The procedures and precautions used to collect PFAS samples are fundamentally applicable to collection of 1,4-Dioxane samples; 1,4-Dioxane samples and blanks can be collected following the same procedures as described above for PFAS samples. The additional precaution needed for 1,4-Dioxane samples is collecting samples without headspace. Samples should be collected by filling the sample container completely with water and ensuring no air bubbles are present when the container is inverted.