



Enter Facility Name

Biosolids PFAS Sampling and Analysis Plan (SAP) TEMPLATE

**In support of 2025 amendments to Revised Code of
Washington (RCW) 70A.226.020**

Solid Waste Management Program

Washington State Department of Ecology
Olympia, Washington

August 2026 - Publication 26-07-035

Publication Information

This document is available on the Department of Ecology's website at:
<https://apps.ecology.wa.gov/publications/summarypages/2607035.html>

Related Information

- Publication 26-07-033: [Sampling Guidance for PFAS in Biosolids](#)
- Publication 26-07-034: [Biosolids PFAS Field Log Template](#)
- Publication 26-07-036: [Lab Cover Sheet](#)
- Ecology biosolids webpage: [PFAS in biosolids sampling law](#)

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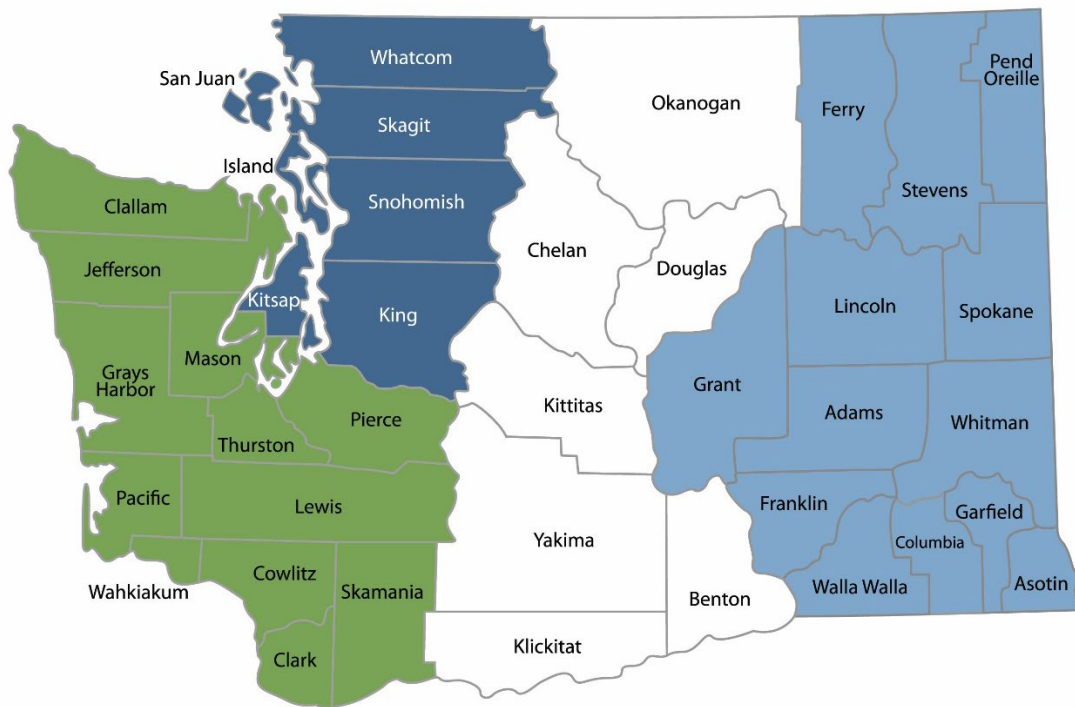
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Northwest Region
206-594-0000

Central Region
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Eastern Region
509-329-3400

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Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	P.O. Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 West Alder Street Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 North Monroe Spokane, WA 99205	509-329-3400
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DEPARTMENT OF
ECOLOGY
State of Washington

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How to use this sampling and analysis plan (SAP)

This sampling and analysis plan (SAP) provides guidance and acts as a template intended to be filled in by the facility. **Facilities must examine and complete each section of this plan in accordance with their operations.**

Once complete, submit this SAP to the appropriate [regional biosolids coordinator](#) for review and approval. Once Ecology has approved a facility's SAP, they should review it in full prior to conducting sampling.

Facilities must submit a complete SAP to Ecology no less than 60 days in advance of sampling activities. Results submitted from sampling conducted without an approved SAP will not be accepted and may be cause for enforcement actions.

Attention to detail is crucial! It's easy to contaminate PFAS samples because it is used in many everyday products. In addition, because we can detect PFAS at such low concentrations, contamination can make a big impact on results. **Ecology recommends facilities keep a copy of their approved SAP nearby when sampling for quick reference.**

Introduction

The collection of a sample and its proper preservation during shipment is critical for obtaining reliable analytical results. This is especially true with chemicals that are widely used and persistent in our environment and can be detected at low concentrations like PFAS.

This plan has been organized into two sections; Planning and Sampling.

Planning will help facilities get prepared for successful sampling. It includes information about:

- finding an accredited lab and communicating sampling needs with them
- gathering necessary equipment and supplies
- all necessary paperwork
- 2-person, clean sampling technique
- general shipping planning and needs

Sampling lays out step-by-step sampling procedures that can be followed precisely or altered as needed for facility operations. This section includes:

- an equipment cleaning protocol
- sampling procedures for PFAS in liquid biosolids
- sampling procedures for PFAS in dewatered biosolids
- shipping tips
- how to review lab results for accuracy

Scope

This sampling and Analysis Plan (SAP) is for sampling biosolids for Per- and Polyfluoroalkyl Substances (PFAS) using the [Environmental Protection Agency's \(EPA\) method 1633A \(or EPA method 1633\)](#). This plan was developed to support sampling efforts required by [chapter 70A.226 Revised Code of Washington](#) (RCW).

When completed by a facility, this SAP is intended to be a complete and concise plan so that sample collection, preservation, and shipment to a lab may be performed with little to no assistance outside of this document.

Law summary

House Bill 5033 amended chapter 70A.226 RCW to require temporary sampling and analysis for PFAS in biosolids. Facilities regulated under the Statewide General Permit for Biosolids Management (general permit) must have their biosolids analyzed at the frequency established in the [Sampling Guidance for PFAS in Biosolids](#) between January 1, 2027, and June 30, 2028. All sampling must be conducted using this Ecology approved Sampling and Analysis Plan (SAP). Analysis must be conducted by an accredited lab using EPA method 1633A (or EPA method 1633).

According to chapter 70A.226 RCW all sampling results must be provided to Ecology for review and compilation into a report. The report will summarize the levels of PFAS found in biosolids generated and/or land-applied in Washington state, and recommendations on how to proceed based on the analysis. While drafting the report, Ecology must consult with an advisory committee made up of representatives outlined in RCW 70A.226.025. The report will be made available to the legislature and public by July 1, 2029.

Planning

1.0 Introduction

In comparison to the pollutant monitoring required for biosolids, sampling for PFAS requires more attention to detail. PFAS is found everywhere in our environment because it is widely used in everyday items like clothing, personal care products, cleaning products, etc. We can also detect PFAS at very low concentrations which means contamination of samples has a big impact on results. Being mindful of the clothing and personal care products worn as well as the cleaning products and sampling equipment used during sampling is important to eliminate the possibility of sample contamination.

The proper collection of a sample and its preservation during shipment are also critical for obtaining reliable analytical results. Samples analyzed at very low concentrations like PFAS require carefully following procedures to prevent sample contamination and ensure samples are both representative of the biosolids sampled and consistently collected.

Table 1 below provides information about the analysis method required for PFAS in biosolids per RCW 70A.226.020.

Table 1. PFAS Analysis Method

Chemicals	Analysis Method	Temperature when lab receives sample(s)	Hold time
40 PFAS Chemicals	EPA Method 1633A or EPA Method 1633	39°F (6°C) or below	Deliver to lab as soon as possible

1.1 Understanding sampling frequency requirements

Per requirements in RCW 70A.226.020 Ecology developed the [Sampling Guidance for PFAS in Biosolids](#) (Sampling Guidance) to clarify sampling frequency requirements. Facilities can locate their sampling frequency in Appendix A of the Sampling Guidance.

1.2 Sampling video

Ecology is developing a sampling video to provide additional instructions on how to appropriately sample biosolids for PFAS. The training video will be made available on the [PFAS in biosolids sampling law webpage](#) in the fall of 2026.

2.0 Selecting a lab

Facilities must use a lab accredited by Ecology for biosolids PFAS analysis. At the time of publication, there were a limited number of laboratories accredited for this method within proximity of Washington state.

Ecology recommends identifying a lab early and using the same one for each sampling event. Facilities should start discussions early with the lab and cover all items under section 2.4 below.

2.1 How to identify an accredited lab

Labs accredited to conduct this analysis can be found in [Ecology's Lab Search database](#).

- 1) Navigate to Ecology's Lab Search Database.
- 2) Select *Search by method*.
- 3) Enter "1633" into the search bar and check the box to *Show only labs that accept public samples*.
- 4) Select *Search by partial method name*.
- 5) Confirm **Solid and chemical materials** is listed under the *MatrixTypeDescription* column.
- 6) Select a lab from the list.

2.2 Laboratory data package requirements

Facilities must request a level 2 data package including QC suitable for Stage 2A data validation from the lab for each sampling event.

2.3 Documents to provide to the lab

To facilitate communications between facilities and labs, Ecology developed the following documents for facilities to provide to the lab ahead of **each** sampling event.

The **Biosolids PFAS Lab Instruction Cover Sheet** includes information about the type of analysis that is being requested. Providing this up front may also reduce sampling costs with certain labs. Facilities submitting liquid biosolids for analysis, must check the box on this cover sheet to indicate this to the lab.

The **Biosolids PFAS Results Template** is the format in which all facilities must electronically submit their results to Ecology. Ecology encourages facilities to supply this template to the lab and request they provide results in this format. **In the event results are received in another format, facilities are responsible for transferring the data into the template themselves.**

These documents will be made available on the [PFAS in biosolids sampling law webpage](#) prior to the start of sampling in January 2027.

2.4 Communicating with the lab

Analyzing biosolids for PFAS requires clear communication with the lab to ensure the appropriate analysis is conducted and that samples arrive at the lab within the method's strict temperature requirements. In addition to providing the lab with the Biosolids PFAS Lab Instructions Cover Sheet, facilities should **communicate the following with the lab**:

- This analysis is required by Ecology's biosolids program per [RCW 70A.226.020](#).
- Their applicable monitoring period(s) (see Table 2 below) to ensure samples are submitted appropriately to meet associated due date(s).
- A level 2 data package including QC suitable for Stage 2A data validation is needed from the lab for each sampling event.
- Facilities collecting liquid biosolids sample(s) must request the lab run a lab duplicate. Make sure to check the box to indicate this on the PFAS Biosolids Lab Instruction Cover Sheet.
- Results must be submitted to Ecology using the Biosolids PFAS Results Template. Supply them the template and request they provide results in this format, in addition to the full lab report.
- What sampling materials facilities can expect the lab to provide (collection containers, cooler for shipping samples, etc.).

2.4.1 Communicating shipping needs with the lab

EPA Method 1633's strict temperature and preservation requirements make shipping an important part of the sampling process. To ensure samples make it to the lab at appropriate temperatures and times, consult with the lab about the following:

- determining whether shipping sample(s) ground or overnight is best
- appropriate sample hold times especially if shipping during hotter temperatures

3.0 Equipment and Supplies

3.1 Field clothing and personal care products

When sampling for PFAS, it's important to wear appropriate clothes and personal care products to eliminate the potential for contamination of samples.

It's appropriate to wear:

- 100% cotton or synthetic clothing that's been well-washed (at least 6 times) without the use of fabric softeners in recent washes
- rubber or neoprene boots
- powderless nitrile gloves

Do not wear:

- waterproofing coated clothing (Gore-Tex)
- clothing treated for stain resistance
- new or unwashed clothing

We also recommend reviewing Michigan Department of Environment, Great Lakes, and Energy's [PFAS Sampling Quick Reference Field Guide](#). It's a comprehensive guide for what to wear and use while conducting sampling for PFAS.

Finding clothing that is completely PFAS-free can be challenging. While new laws are in place to stop intentional use of PFAS in [cosmetics and personal care products](#), as well as [apparel and accessories](#), this doesn't account for addition from unknown sources. We've compiled some additional resources for identifying PFAS-free products in Appendix A.

3.2 Equipment

Review all necessary equipment for sampling procedures below. Get all items listed in sections 3.2.1 through 3.2.4. Items in section 3.2.5 are specialty items only needed for certain types of operations. Facilities must review and check the boxes in section 3.2.5 for which specialty items they'll use.

Items marked with * may be provided by the lab.

3.2.1 Cleaning

- PFAS-free soap such as Alconox®, Liquinox® or Citranox® (no Decon 90®)
- polyethylene or polyvinylchloride (PVC) brush to remove particulates
- PFAS free water (additional info in section 10.2)
- heavy duty aluminum foil (i.e. Reynolds®)
- *(optional) cotton cloth or untreated paper towels, not recycled or chemically treated paper towels.*

Amounts of each cleaning product needed will depend on how many samples are required. In general 2 liters of PFAS free water is a good estimation to conduct the cleaning protocol two times.

3.2.2 Note taking and sample labeling

- Ecology's [Biosolids PFAS Field Log](#) to record conditions during sampling (additional info in section 4.2)
- time-keeping device like a watch or cellphone
- sharpie® pens, ink pens
- aluminum or Masonite clipboard(s) (not plastic)
- camera to take pictures of collected samples
- non-glossy labels for sample containers*

Cellphones are a great option for keeping time and taking pictures of samples. However, they are also a source of contamination! So be mindful of handling sample containers right after cellphones.

3.2.3 Sample collection

- at least 4 pairs powder-free nitrile gloves per person, per sampling event (If layering gloves, purchasing them a little large allows multiple gloves to be worn while still having good finger dexterity)
- one large stainless-steel spoon/scoop
- one large stainless steel mixing bowl for dewatered biosolids or an HDPE bucket for liquid biosolids
- a flat, portable, cleanable surface for preparing sample containers. We recommend a portable/foldable table or similar that can easily be rinsed clean. (i.e. folding table covered in aluminum foil)
- lab provided sampling containers
- small LDPE resealable zip top storage bags*

3.2.4 Shipping supplies

- chain of custody (COC) forms*
- shipping labels*
- cooler for shipping samples to lab*
- large LDPE resealable zip top storage bags for ice
- ice for packing cooler (no chemical freezer packs or gel packs)
- packing tape to affix labels and secure coolers during shipment

3.2.5 Specialized sample collection equipment

Depending on facility operations specialized equipment may be necessary to collect samples appropriately. Facilities must review this list and check the boxes for which specialty items they'll use.

Sampling from drying beds or storage

- ☐ Metal shovel, trowel, or other metal sampling tool,
- ☐ Map of sampling locations,
- ☐ PFAS-free boots or PFAS-free boot covers or other option

Sampling from Lagoons

- ☐ Small boat,
- ☐ HDPE sludge judge,
- ☐ Life jackets,
- ☐ Traffic cones or flags to mark sampling locations

Sampling from digesters

- ☐ Long handled stainless steel dipper

Other

If using equipment different than above, please describe both what equipment is being replaced and what it's being replaced with here:

Click or tap here to enter text.

4.0 Paperwork

When conducting sampling there is also paperwork that must be complete to adequately document the process. The lab also needs certain paperwork to ensure they have the info they need to conduct the appropriate analysis.

With the exception of the Chain of Custody, all documents listed below are resources Ecology is developing. Ecology will publish the documents in this section to the [PFAS in biosolids legislation webpage](#) before the start of the sampling period in January 2027.

4.1 Send it to the lab

Facilities must put some paperwork for the lab in the cooler with their sample(s). All documents included in the cooler must be sealed in a zip top bag to keep them from getting wet or damaged during shipment.

4.1.1 Chain of Custody (COC)

Facilities will receive the Chain of Custody (COC) directly from the lab.

Facilities must complete the COC and ensure it's accurate. Each sample must be accurately and individually documented. Keep a copy and include one in the cooler with the sample(s) going to the lab.

4.1.2 Biosolids PFAS Lab Instructions Cover Sheet

This is intended to assist facilities when communicating sampling needs to the lab. It includes instructions both for the facility and lab to ensure the correct analysis is conducted. Facilities should provide a copy to the lab early on when establishing a contract and include a copy in the cooler with the sample(s) going to the lab.

4.1.3 Biosolids PFAS Results Template

Results must be submitted to Ecology using the Biosolids PFAS Results Template. **In the event results are received in another format, facilities are responsible for transferring the data into the template themselves.** Ecology recommends asking the lab to provide results using this template up front and discussing whether this will incur additional costs.

4.2 Complete and submit to Ecology

Facilities must complete a field log during each sampling event and provide it to Ecology with results.

4.2.1 Biosolids PFAS Field log

Ecology developed the Biosolids PFAS Field Log (field log) for facilities to capture details about the sample collection process and conditions. A field log must be complete during each sampling event and submitted to Ecology with the results.

5.0 Selecting an appropriate sampling location

An appropriate sampling location will depend on each facility's operations. Biosolids should be sampled when they are well mixed and most representative of their final form. Make sure to identify a suitable location to setup sampling supplies near the sample collection location to minimize contamination potential.

More details about appropriate sample locations for different operations are provided in sections 10.3 through 10.5, below.

6.0 Clean hands, dirty hands sampling technique

This two-person sampling technique makes use of two people to divvy up sampling tasks to reduce the potential for contamination. This technique is often recommended for sampling chemicals with high potential for contamination, like PFAS.

The clean hands role collects samples and pays special attention to avoid contamination, only touching (with gloved hands) what is absolutely necessary throughout the process. The dirty hands role handles note-taking and timing sample collection since these tasks require touching (with gloved hands) items that may contain PFAS like paper, pens, tape and cooler. They take special care NOT to handle samples or collection containers until they have been sealed.

Ecology recommends making use of the clean hands, dirty hands technique when sampling biosolids for PFAS. We've developed detailed sampling procedures in section 10 below, using the clean hands, dirty hands sampling technique. Appendix B: General Clean Hands, Dirty Hands Sampling Procedures Table also outlines the general tasks for each of these roles during sampling. Appendix B is intended as a reference, not a step-by-step sampling guide.

If needed, more than 2 people can assist with sampling. Everyone involved must be wearing appropriate clothing and gear.

6.1 Layering Gloves

During sampling procedures, both clean hands and dirty hands roles will change gloves several times. For a quicker glove change that reduces the potential for contamination, layer several pairs of gloves on top of each other. When a clean pair is needed, simply remove the top pair and discard. Purchasing gloves that are slightly large may make layering easier and more comfortable.

Please note that the sampling procedures in sections 10.3 through 10.5 include references to "removing a layer of gloves". If facilities aren't layering gloves, this is when gloves should be removed and replaced.

7.0 Preparing for sample shipment

EPA Method 1633's strict temperature and preservation requirements make shipping an important part of the sampling process. Plan ahead to ensure samples arrive at the lab at or below 39°F (6°C). This will mean keeping samples cold **at all times** after collection through arrival at the lab.

Shipping samples should be done in accordance with instructions and coolers the lab provides. Depending on how far facilities are from their lab, this may mean:

- hand delivering samples, or
- packing samples in a cooler with plenty of ice and shipping them the fastest route possible.

Whichever transportation method is used, the following tips should help achieve a smooth shipping process:

- freeze samples solid for 24 hours whenever possible before shipping
- **pack coolers with as much ice as possible!**
- use wet ice double-bagged in zip-top bags, not gel packs
- avoid transporting during hotter temperatures, whenever possible
- ship early in the week to avoid samples arriving over the weekend

8.0 Preparing for sample submission

When lab results are returned facilities should review them for accuracy and to confirm that the lab has provided all necessary information, before submitting them to Ecology. Additional details about this review is provided in section 12 below.

Once results have been reviewed, they are ready to be submitted to Ecology. During the sampling period from January 1, 2027 through June 30, 2028 facilities will have access to their assigned sampling frequency in the online Biosolids PFAS Monitoring Portal. This is the platform facilities must use to submit results to Ecology. More information on this online portal is in section 13, below.

Results must be submitted to Ecology using the Biosolids PFAS Results Template. **In the event facilities receive results in another format, facilities are responsible for transferring the data into the template for uploading themselves.** Ecology recommends asking the lab to provide results using this template up front, and discussing whether this will incur additional costs.

Sampling

9.0 Introduction

In comparison to the pollutant monitoring required for biosolids, sampling for PFAS requires more attention to detail because:

- PFAS is found everywhere in our environment as it is widely used in everyday products like clothing, personal care products, cleaning products, etc. making contamination much more likely.
- We can detect PFAS at such low concentrations which means minor contamination of samples can impact results.

9.1 Sampling frequency

Facilities must fill in the blanks below to identify their assigned sampling frequency. Refer to Table 1 and Appendix 8 in the [Sampling Guidance for PFAS in Biosolids](#) if unsure.

The sampling frequency for is:

Table 2. Sampling schedules

Sampling Frequency	Sampling event	Monitoring period start date	Monitoring period end date	Results due to Ecology by
Once	First	1/1/2027	5/18/2028	6/1/2028
Once a year (annually)	First	1/1/2027	12/24/2027	1/7/2028
Once a year (annually)	Second	1/1/2028	5/18/2028	6/1/2028
Every 6 months (biannually)	First	1/1/2027	6/16/2027	6/30/2027
Every 6 months (biannually)	Second	6/17/2027	12/24/2027	1/7/2028
Every 6 months (biannually)	Third	12/25/2027	5/18/2028	6/1/2028
Every 3 months (quarterly)	First	1/1/2027	3/17/2027	3/31/2027
Every 3 months (quarterly)	Second	3/18/2027	6/16/2027	6/30/2027
Every 3 months (quarterly)	Third	6/17/2027	9/16/2027	9/30/2027
Every 3 months (quarterly)	Fourth	9/17/2027	12/24/2027	1/7/2028
Every 3 months (quarterly)	Fifth	12/25/2027	3/17/2028	3/31/2028
Every 3 months (quarterly)	Sixth	3/18/2028	5/18/2028	6/1/2028

9.2 Selecting a sampling procedure

We've identified step by step sampling procedures using the clean hands, dirty hands technique for both liquid and dewatered biosolids for the most common facility operations. The list below describes each sampling procedure and includes where the associated sample procedures can be found in sections 10.3 through 10.5. Most facilities will be able to make use of one of these sampling procedures and follow them precisely.

Some facilities with unique operations will need to make minor adjustments to one of these sampling procedures. On rare occasion, facilities with unique operations may need to generate their own sampling procedures based closely on one of the established procedures. Facilities should review the sampling procedures closely to determine what is most appropriate for them.

Facilities must check the box below for the sampling procedure they will follow:

- If **minor changes need to be made to a procedure** listed below, check the box for the appropriate procedure. Then indicate the adjustments needed in the area provided below the applicable sampling procedure. Facilities must document their sampling procedure thoroughly.
- If **generating an entirely new sampling procedure** based on one of the established ones, check the box under "Other" and document the sampling procedure in section 10.5. Facilities must document their sampling procedure thoroughly.

Biosolids Sampling procedures

Liquid Biosolids Sample Procedures

- ☐ liquid biosolids from lagoons (section 10.3.1),
- ☐ non-lagoon liquid biosolids (section 10.3.2),

Dewatered Biosolids Sample Procedures

- ☐ Dewatered biosolids from lagoons (section 10.4.1),
- ☐ Mechanically dewatered or heat dried dewatered biosolids (section 10.4.2),
- ☐ Drying beds (section 10.4.3),

Other Biosolids Sample Procedures

- ☐ None of the procedures above fit, so facility will generate their own (section 10.5).

10.0 Biosolids sampling procedures

All facilities will follow sample set up and cleaning protocols in sections 10.1 and 10.2 to begin. Then facilities will follow the sampling procedures appropriate for their facility (the box checked above). Once sample collection is complete, follow the cleaning protocol again in section 10.2 to wash the sampling equipment.

10.1 Sampling setup

Before beginning to collect samples, complete the following set up procedures to get organized. This will ensure a smooth sampling process and reduce the potential for contamination.

1. Have the field log ready to take notes during sampling.
2. Label and date the lab sample container(s). Leave the time blank.
3. Make sure cold storage space is ready.
 - 3.1 A cooler with ice double-bagged in zip top bags, or
 - 3.2 Fridge/freezer with adequate space already cleared for samples.

10.2 Cleaning equipment

Before each sampling event most items from the sample collection equipment (section 3.2.3) and specialized sample collection equipment (section 3.2.5) lists must be prepared in accordance with the cleaning protocol below. This includes cleaning immediately before sampling and immediately after each sampling event. Cleaning the equipment at the end of a previous sampling event does not suffice for the next one.

Facilities sending multiple samples to the lab from the same sampling event (day), must clean equipment between each composite sample or have a separate set of equipment for each composite sample.

This cleaning protocol calls for doing a final rinse with **PFAS free water**. This is to eliminate the potential for contamination which could result in higher PFAS results. PFAS free water can be purchased from the lab.

10.2.1 Cleaning Protocol

It doesn't matter who does what in this protocol, but everyone must wash their hands and put on gloves prior to sampling.

- 1) Clean hands and dirty hands must first clean their hands thoroughly with soap and water. The type of soap and water doesn't matter here.
- 2) Clean hands and dirty hands will then put on powder free nitrile gloves.
 - a) *This sampling technique requires changing gloves multiple times while sampling. For a quicker glove change, layer 2-3 pairs on top of each other. Simply remove the top pair and discard when a clean pair is required.*
- 3) Rinse equipment using potable water, being sure every surface gets wet.
 - a) *If facilities are concerned about contamination from potable water, they can check drinking water sampling results in [DOH's PFAS Testing Results Dashboard](#).*
- 4) Thoroughly scrub equipment with soap and brush.
- 5) Rinse equipment with PFAS free water, making sure all soap is rinsed off.
- 6) Wrap equipment in tin foil for safe storage to prevent contamination between cleaning and sampling.
- 7) Remove a layer of gloves before starting sampling procedures.

10.3 Liquid biosolids sample procedures

Facilities that generate liquid biosolids such as via a digester or a lagoon will follow procedures in sections 10.3.1 or 10.3.2.

10.3.1 Liquid biosolids from a lagoon

For facilities that operate lagoons only one sample is required, regardless of whether the materials are dewatered after removal. These facilities will follow the sampling schedule to sample once in Table 2, above. Facilities that generate dewatered biosolids from a lagoon should follow the sampling instructions under section 10.4.1 [Dewatered biosolids from a lagoon section](#), below.

All lagoons generating liquid biosolids will only conduct one sampling event resulting in a single sample being sent to the lab. The lab will divide the sample and run an analysis on each sub-sample.

Before sampling, facilities need to create a map of their lagoon sampling locations (grid map). This will mean dividing the Lagoon(s) into 12 approximately equal sections and taking one grab sample from within each of those sections. **Facilities must submit a copy of their grid map with this SAP for approval.**

Sample collection steps:

- 1) Once the cleaning protocol is complete, facilities should prepare to collect samples from each of the 12 sample locations according to their approved grid map. Clean hands will be in charge of collecting samples, dirty hands will be responsible for moving the boat.
- 2) Clean hands will use a sludge judge to collect a grab sample from each section of the grid map and place them in the HDPE bucket.
- 3) Dirty hands will record the sampling start time in the field log when the first grab sample is collected. They will also make note of the weather and any events that occurred while sampling that could impact sample results.
- 4) Once all grab samples are in the HDPE bucket, dirty hands will record the sampling end time in the field log.
- 5) Bring the HDPE bucket to the sampling table set up.
- 6) Clean hands will mix the composite sample thoroughly but gently using the stainless steel spoon or scoop. *Be cautious NOT to generate bubbles while mixing as this can impact the results.*
- 7) Dirty hands will remove a layer of gloves, and take a picture of the composite sample(s). Dirty hands will remove another layer of gloves after handling the camera/phone.
NOTE: If it's possible for a third person to take this picture that is preferable to avoid contamination.
- 8) Clean hands will collect a sample with the stainless steel spoon or scoop and fill the lab provided sample container with biosolids from the composite sample in the HDPE bucket.
Follow the lab's instructions on how much biosolids to put in the sample container.
- 9) Clean hands will seal the sample container then hand the container to dirty hands.
- 10) Dirty hands will complete the container label making sure it describes the sample number, sample end time, and anything else the lab directs.

- 11) Dirty hands will cover the label with a piece of clear tape to protect it from moisture during shipment.
- 12) Dirty hands will then seal each sample container in small zip top bags, and finally place each sample in the cooler or fridge/freezer.
- 13) Dirty hands will then immediately complete the chain of custody form.
- 14) Then complete the cleaning protocol.
- 15) Next follow the shipping instructions in section 11.

☐

Check this box if sampling procedure 10.3.1 is appropriate but requires some small adjustments. Describe the adjustments needed in the text box below. Be sure to provide the step number(s) that require adjustments and a description of the changes made.

10.3.2 Non-lagoon liquid biosolids

This section applies to facilities generating liquid biosolids without the use of a lagoon. Depending on facility operations, follow the sampling schedule to sample once or every 6 months (biannually) according to Table 2, above.

Each sampling event (day) will require a single liquid sample to be sent to the lab. The lab will divide the sample and run an analyses on each sub-sample.

Selecting a sampling location

When selecting a sampling location, the focus should be on sampling the biosolids when they are most representative of their final form. The intent is to sample well-mixed biosolids at the last possible stage in the treatment process. For example, to take sample(s) out of a digester that is currently being aerated or mixed, not from the sludge blanket settling at the bottom of a clarifier. Sampling locations can include:

- sampling port from digester
- solids holding tank

Sampling Location:

Sample collection steps:

- 1) Make sure the mixer or aerator has been mixing for a while. Conduct all sample prep and cleaning protocol while waiting.
 - a) If the biosolids have been settling without mixing for more than an hour, let it mix/aerate for about an hour to ensure the biosolids sample is representative and well-mixed.
 - b) If the biosolids are mixed at regular intervals, sample after the start of the mixing process to ensure the biosolids sample is representative and well-mixed.
- 2) If collecting material from a **sampling port**, flush the pipe before taking a sample. If sampling from a tank or digester, skip to step 3.
 - a) Flushing the pipe appropriately depends on its size. To flush the pipe, dirty hands will open the valve long enough so all material in the lines have cleared the system, an estimated 1-2 minutes, before taking samples.
 - b) Clean hands will collect about 2 liters of biosolids into an HDPE bucket.
 - c) Dirty hands will record the sampling start and end time (same time) in the field log when clean hands begins collecting 2 liters of biosolids. They will also make note of the weather and any events that occurred while sampling that could impact sample results.
 - d) Once complete, skip step 3 and move on to step 4
- 3) If collecting directly from a **tank or digester**:
 - a) Clean hands will collect 15-20 grab samples using the stainless steel spoon or scoop, and empty them into the HDPE bucket. This should generate about 2 liters of biosolids in the bucket.
 - b) Dirty hands will record the sampling start time in the field log when clean hands collects the first grab sample. They will record the sampling end time in the field log when clean

hands collect the last grab sample from the tank or digester. They will also make note of the weather and any events that occurred while sampling that could impact sample results.

- 4) Once all grab samples are in the HDPE bucket, bring the HDPE bucket to the sampling station if it's setup away from the grab sample collection point.
- 5) Clean hands will mix the composite sample thoroughly but gently using the stainless steel spoon or scoop to ensure they are combined without forming bubbles. *Be cautious NOT to generate bubbles while mixing as this can impact the results.*
- 6) Dirty hands will remove a layer of gloves, and take a picture of the composite sample(s), then remove another layer of gloves after handling the phone or camera.
NOTE: If it's possible for a third person to take this picture that is preferable to avoid contamination.
- 7) Clean hands will collect a sample with the stainless-steel spoon or scoop and fill the lab provided sample container with biosolids from the composite sample in the HDPE bucket.
NOTE: Follow the lab's instructions on how much biosolids to put in the sample container.
- 8) Clean hands will seal the sample container, then hand the container to dirty hands.
- 9) Dirty hands will complete the container label making sure it describes the sample number, time of collection, and anything else the lab directs.
- 10) Dirty hands will cover the label with a piece of clear tape to protect it from moisture during shipment.
- 11) Dirty hands will then seal each sample container in small zip top bags, and finally place each sample in the cooler or fridge/freezer.
- 12) Dirty hands will then immediately complete the chain of custody form.
- 13) Then complete the cleaning protocol again.
- 14) If collecting additional samples, after completing the cleaning protocol do steps 2b-13 again (if collecting from a **sampling port**), or 3a-13 again (if collecting from a **tank or digester**)
- 15) Once all samples are collected, follow the shipping instructions in section 11.

☐ **Check this box if sampling procedure 10.3.2 is appropriate but requires some small adjustments.** Describe the adjustments needed in the text box below. Be sure to provide the step number(s) that require adjustments and a description of the changes made.

10.4 Dewatered biosolids sample procedures

Facilities that generate dewatered biosolids via lagoon, belt filter presses or similar, or drying beds will follow one of the sampling procedures in sections 10.4.1, 10.4.2, or 10.4.3.

Facilities that generate dewatered biosolids from a lagoon should follow the sampling instructions under section 10.4.1 [Dewatered biosolids from a lagoon section](#).

10.4.1 Dewatered biosolids from a lagoon

For facilities that operate lagoons only one sample is required, even if materials are dewatered after removal. Follow the sampling schedule to sample once according to Table 2, above. This requires only one sampling event resulting in a single sample to be sent to the lab.

It can take several hours to a day for the contractor to figure out the correct polymer dosing. Don't begin collecting samples until this is accomplished; when possible, wait until the second day to begin collecting a sample.

Selecting a sampling location

When selecting a sampling location, the focus should be on sampling the biosolids when they are most representative of their final form. Sample collection should happen while dewatering is taking place whenever possible. Choose a location where biosolids can be collected without requiring any scraping of or pulling them off another surface. For example, don't try scraping a thin layer of biosolids off a cement pad or conveyor belt as this can introduce contamination. If samples must be taken directly off the conveyor belt, avoid making contact between the spoon/scoop and conveyor belt. Sampling locations can include:

- dewatering outlet,
- conveyor belt outlet into truck or container.

Sampling Location:

☐ If samples can't be collected while the dewatering process is occurring check this box. (For example, if samples need to be taken from a stockpile, storage bay, or truck.) Facilities should review the options below and check the box that is most appropriate for them.

☐ Use the drying bed sampling procedures in section 10.4.3 as a guide and describe any adjustments needed in the text box provided at the end of the section, or

☐ None of the procedures above fit, so facility will generate their own (section 10.5).

Sample collection steps during dewatering:

- 1) Once the cleaning protocol is complete, prepare to collect grab samples.
- 2) Dirty hands will record the sampling start time in the field log when the first sample is collected. They will give time cues to clean hands to collect a grab sample every 30 seconds following. Dirty hands should also keep track of the number of grab samples taken.
- 3) Clean hands will use the stainless steel spoon or scoop to collect 15-20 grab samples, 30 seconds apart according to dirty hands' time cues, adding each grab sample to the stainless steel bowl.

- 4) Once all grab samples are in the stainless steel bowl, dirty hands will record the sampling end time in the field log. They will also make note of the weather and any events that occurred while sampling that could impact sample results.
- 5) Once all grab samples are in the HDPE bucket, bring the HDPE bucket to the sampling station if it's set up away from the grab sample collection point.
- 6) Clean hands will mix the composite sample thoroughly but gently using the stainless steel spoon or scoop.
- 7) Dirty hands will remove a layer of gloves and take a picture of the composite sample, then remove another layer of gloves after handling the phone or camera.
NOTE: If it's possible for a third person to take this picture that is preferable to avoid contamination.
- 8) Clean hands will collect a sample with the stainless steel spoon or scoop and fill the lab provided sample container with biosolids from the composite sample in the stainless steel bowl. *Follow the lab's instructions on how much biosolids to put in the sample container.*
- 9) Clean hands will seal the sample container and hand the container to dirty hands.
- 10) Dirty hands will complete the container label making sure it describes the sample number, time of collection, and anything else the lab directs.
- 11) Dirty hands will cover the label with a piece of clear tape to protect it from moisture during shipment.
- 12) Dirty hands will then seal each sample container in small zip top bags, and finally place each sample in the cooler or fridge/freezer.
- 13) Dirty hands will then immediately complete the chain of custody form.
- 14) Then complete the cleaning protocol.
- 15) Next follow the shipping instructions in section 11.

☐ **Check this box if sampling procedure 10.4.1 is appropriate but requires some small adjustments.** Describe the adjustments needed in the text box below. Be sure to provide the step number(s) that require adjustments and a description of the changes made.

10.4.2 Mechanically dewatered and heat dried biosolids

This section applies to facilities generating biosolids via heat drying, belt filter press, centrifuge, screw press, and other similar methods. This does not include drying beds or lagoons.

Facilities must follow the sampling schedule to sample once a year (annually) or every three months (quarterly) according to Table 2, depending on their identified sampling frequency.

When selecting a sampling location, the focus should be on sampling the biosolids when they are most representative of their final form. Sample collection should happen while dewatering is taking place whenever possible. Choose a location where biosolids can be collected without requiring any scraping of or pulling them off another surface. For example, don't try scraping a thin layer of biosolids off a cement pad or conveyor belt as this can introduce contamination. If samples must be taken directly off the conveyor belt, avoid making contact between the spoon/scoop and conveyor belt. Sampling locations can include:

- dewatering outlet,
- conveyor belt,
- conveyor belt outlet into truck.

Sampling Location:

☐ If samples can't be collected while the dewatering process is occurring check this box. (For example, if samples need to be taken from a stockpile, storage bay, or truck.) Facilities should review the options below and check the box that is most appropriate for them.

☐ Use the drying bed sampling procedures in section 10.4.3 as a guide and describe any adjustments needed in the text box provided at the end of the section, or

☐ None of the procedures above fit, so facility will generate their own (section 10.5).

Sample collection steps during dewatering:

- 1) Start up dewatering equipment and let it run for at least 15 minutes.
- 2) Once the cleaning protocol is complete, prepare to collect grab samples.
- 3) Dirty hands will record the sampling start time in the field log when the first sample is collected. They will give time cues to clean hands to collect a grab sample every 30 seconds following. Dirty hands should also keep track of the number of grab samples taken.
- 4) Clean hands will use the stainless steel spoon or scoop to collect 15-20 grab samples, 30 seconds apart according to dirty hands' time cues, adding each grab sample to the stainless steel bowl.
- 5) Once all grab samples are in the stainless steel bowl, dirty hands will record the sampling end time in the field log. They will also make note of the weather and any events that occurred while sampling that could impact sample results.
- 6) Once all grab samples are in the HDPE bucket, bring the HDPE bucket to the sampling station if it's set up away from the grab sample collection point.
- 7) Clean hands will mix the composite sample thoroughly but gently using the stainless steel spoon or scoop.

- 8) Dirty hands will remove a layer of gloves and take a picture of the composite sample, then remove another layer of gloves after handling the phone or camera.
NOTE: If it's possible for a third person to take this picture that is preferable to avoid contamination.
- 9) Clean hands will collect a sample with the stainless steel spoon or scoop and fill the lab provided sample container with biosolids from the composite sample in the stainless steel bowl. *Follow the lab's instructions on how much biosolids to put in the sample container.*
- 10) Clean hands will seal the sample container and hand the container to dirty hands.
- 11) Dirty hands will complete the container label making sure it describes the sample number, time of collection, and anything else the lab directs.
- 12) Dirty hands will cover the label with a piece of clear tape to protect it from moisture during shipment.
- 13) Dirty hands will then seal each sample container in small zip top bags, and finally place each sample in the cooler or fridge/freezer.
- 14) Dirty hands will then immediately complete the chain of custody form.
- 15) Then complete the cleaning protocol.
- 16) Next follow the shipping instructions in section 11.

☐ **Check this box if sampling procedure 10.4.2 is appropriate but requires some small adjustments.** Describe the adjustments needed in the text box below. Be sure to provide the step number(s) that require adjustments and a description of the changes made.

10.4.3 Drying beds

This section applies to facilities generating biosolids via drying beds. This does not include mechanically dewatered or heat dried biosolids or dewatered biosolids from lagoons.

Facilities will follow the sampling schedule according to Table 2, collecting either 2 or 6 samples depending on their identified sampling frequency. Facilities can either conduct the cleaning protocol after each sample container is filled with composite sample, or obtain a full set of sampling equipment for each sample required to be sent to the lab. The instructions below are written for making use of the cleaning protocol between each sample.

Before sampling, facilities need to create a map of their drying bed sampling locations (grid map). This will mean visually dividing the drying bed(s) into 2 or 6 approximately equal sections and taking one composite sample from each section. To the extent possible, make these divisions so that each composite sample is representative of different time periods. **Facilities must submit a copy of their grid map with this SAP for approval.**

Sample collection steps:

- 1) Once the cleaning protocol is complete, facilities should prepare to collect samples from each of the sample locations according to their approved grid map.
- 2) Clean hands will use a stainless-steel spoon or scoop to collect 15-20 grab samples from section 1 and place them in the stainless-steel bowl.
- 3) Dirty hands will record the sampling start time in the field log when the first grab sample is collected. They will also make note of the weather and any events that occurred while sampling that could impact sample results.
- 4) Once all grab samples from section 1 of the grid map are in the stainless-steel bowl, dirty hands will record the end time in the field log for sample 1.
- 5) Once all grab samples from section 1 of the grid map are in the stainless-steel bowl, bring it to the sampling station if it's set up away from the grab sample collection point.
- 6) Clean hands will mix the composite sample thoroughly but gently using the stainless-steel spoon or scoop.
- 7) Dirty hands will remove a layer of gloves and take a picture of the composite sample, then remove another layer of gloves after handling the phone or camera.
NOTE: If it's possible for a third person to take this picture that is preferable to avoid contamination.
- 8) Clean hands will collect a sample with the stainless-steel spoon or scoop and fill the lab provided sample container with biosolids from the composite sample in the stainless steel bowl. *Follow the lab's instructions on how much biosolids to put in the sample container.*
- 9) Clean hands will seal the sample container then hand the container to dirty hands.
- 10) Dirty hands will complete the container label making sure it describes the sample number, time of collection, and anything else the lab directs.
- 11) Dirty hands will cover the label with a piece of clear tape to protect it from moisture during shipment.
- 12) Dirty hands will then seal each sample container in small zip top bags, and finally place each sample in the cooler or fridge/freezer.

- 13) Follow steps 1-13 again for each section of the drying bed, being sure to complete the cleaning protocol after each composite sample.
- 14) Dirty hands will immediately complete the chain of custody form.
- 15) Then complete the cleaning protocol.
- 16) Next follow the shipping instructions in section 11.

☐ **Check this box if sampling procedure 10.4.3 is appropriate but requires some small adjustments.** Describe the adjustments needed in the text box below. Be sure to provide the step number(s) that require adjustments and a description of the changes made.

10.5 Other

On rare occasion, facilities with unique operations may need to generate their own sampling procedures based closely on one of the established procedures. Facilities that need to generate their own sampling process must provide a detailed description of it below. The procedures must closely follow one of the above established procedures with respect to:

- the cleaning protocol
- timing requirements (if applicable)
- developing and making use of a grid map (if applicable)
- the number of grab and/or composite samples required
- replacing or layering gloves to minimize contamination

If more room is needed than what is provided below, please attach in a separate document. Sampling Location:

11.0 Shipping Instructions

Once samples are collected, facilities must pack them for shipment so they arrive at the lab at or below 39°F (6°C). This will mean keeping samples cold **at all times** after collection through arrival at the lab.

We've provided general steps below to help facilities get samples to the lab successfully. Please keep in mind that shipping samples should be done in accordance with instructions and/or containers the lab provides.

11.1 Prep

- 1) Freeze samples solid for 24 hours whenever possible before shipping.
- 2) Ensure samples are tightly sealed and in zip top bags.

11.2 Pack

- 3) **Pack coolers with as much ice as possible!**
- 4) Use wet ice double-bagged in zip-top bags, not gel packs.
- 5) Tightly seal cooler with tape.

Make sure to include all paperwork listed below sealed in a zip-top bag in the cooler. This keeps the paperwork legible when it arrives at the lab.

- 6) Chain of Custody, and
- 7) Biosolids PFAS Lab Instruction Cover Sheet.

11.3 Transport

Depending on how far facilities are from their lab, transporting samples may mean hand delivering, or dropping a packed cooler off at a shipping company.

When transporting samples to a shipping company:

- 8) Avoid transporting during hotter temperatures, whenever possible.
- 9) Ship early in the week to avoid samples arriving over the weekend.
- 10) Check pickup and delivery times when shipping samples to minimize holding times. This is especially important to consider during summer months.

11.4 Follow up

Once samples are on their way to the lab, email copies of the following documents to the lab:

- 11) Completed Chain of Custody (COC),
- 12) Biosolids PFAS Results Template,
- 13) Biosolids PFAS Lab Instruction Cover sheet, and
- 14) pictures of samples.

12.0 Data analysis review

When biosolids lab results are returned they need to be reviewed for accuracy and to confirm that the lab has provided all necessary information. Facilities must check the following details:

1. Correct matrix was used
2. Correct units were used
3. COC is accurate and signed by the lab
4. Whether error flags indicate samples were analyzed outside of their hold times or other problems

If laboratory errors are caught quickly, the lab may still have the original sample on hand, making it cheaper and easier to re-run and required test.

13.0 Submission portal

Once facilities receive labs results, they must submit them to Ecology using the Biosolids PFAS Monitoring Portal. This is an online platform developed to simplify the results submission process and assist with tracking sampling event(s). Facilities will access this portal the same way they access and submit annual reports.

At a minimum, facilities will be required to submit the following for each sampling event:

- Biosolids PFAS Results Template (excel) (more info in sections 2.3 and 4.1.3 above)
- Full data analysis results the lab provides including Quality Assurance/Quality Controls (QA/QC) and COC. [Lab Cover Sheet](#) provided.
- A copy of the [Biosolids PFAS Field Log](#) (more info in section 4.2 above)

Appendix A: Additional Resources for Identifying PFAS-Free Clothing and Personal Care Products

Finding clothing that is completely PFAS-free can be challenging. While new laws are in place to stop intentional use of PFAS in [cosmetics, personal care products, apparel and accessories](#) this doesn't account for the accidental addition of PFAS. We've compiled some additional resources below for identifying PFAS-free products.

[EGLE PFAS Quick Reference Field Guide](#) is a comprehensive guide for what to wear and use while conducting sample for PFAS.

[Ecology's Shopping for safer consumer products webpage](#) explains what to look for to avoid certain chemicals including PFAS.

[Washington State Department of Health's PFAS in consumer products webpage](#) provides tips on how to reduce exposure to PFAS from everyday products, including clothing and personal care products.

[PFAS Central PFAS-Free Products list](#) may help facilities identify PFAS-free clothing and person care products. Check policy statements for clarity about the PFAS content of products.

Appendix B: General Clean Hands, Dirty Hands Sampling Process

Keep table for broad overview of major steps and how to avoid contamination.

Clean Hands	Dirty Hands
Wash hands thoroughly.	Wash hands thoroughly.
Put on powder free nitrile gloves and change them as needed when they are contaminated or damaged. Layer gloves for quicker/smooth sampling.	Put on powder free nitrile gloves and change them as needed when they are contaminated or damaged. Layer gloves for quicker/smooth sampling.
Clean equipment according to cleaning protocol in section 10.2.1.†	Complete sampling setup in section 10.1.†
Remove a layer of gloves.	Remove a layer of gloves.
Collect grab samples in stainless steel or HDPE container.	Record timing in field log and provide time cues as necessary.
Gently but thoroughly mix samples using large stainless-steel spoon or scoop	Record weather in field notes and any other occurrences that may impact sampling results. Take picture of the composite sample.
Fill lab provided sample containers as directed by lab.	Remove a layer of gloves.
Cap the containers, wipe clean if necessary, and pass along to dirty hands.	Record time on the sample label(s), cover with tape.
Remove layer of gloves.	Seal each sample in small LDPE zip top bag.
Clean equipment according to cleaning protocol in section 10.2.1.†	Put the samples in cold storage and immediately complete the COC.
Prepare cooler for shipment.†	

† Can be performed by either person.