New Mexico Environment Department Surface Water Quality Bureau

Standard Operating Procedure for

Per- and Polyfluoroalkyl Substances (PFAS) Sample Collection

Approval Signatures

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1.0 Purpose and Scope

The purpose of this Standard Operating Procedure (SOP) is to describe the sample collection techniques, preservation requirements, equipment, and quality control activities associated with sampling of per-and polyfluorinated alkyl substances (PFAS) by the New Mexico Environment Department (NMED) Surface Water Qualify Bureau (SWQB). The sampling of PFAS requires careful planning, sampling, and shipping techniques that ensure the integrity of the sample. This SOP provides detailed procedures to reduce cross-contamination sources and provides quality assurance requirements for staff to ensure the collection of valid samples to be analyzed for PFAS analytes.

2.0 Personnel Responsibilities

The Monitoring, Assessment, and Standards Section (MASS) Program Manager coordinates with monitoring staff and the Quality Assurance Officer (QAO) as applicable to ensure quality data is collected, verified, and validated to support program commitments. The Program Manager will provide input on the scope and intent of the Standard Operating Procedure (SOP) as it pertains to the program's goals and objectives.

The QAO is involved in the development and revision of this SOP to ensure the SOP meets the requirements of the most current SWQB's Quality Assurance Project Plan for *Water Quality Management Programs* (NMED/SWQB 2024 or most current). The QAO, along with the MASS Program Manager and staff implementing this SOP, will determine if any revisions to this SOP are needed at a minimum of every two (2) years in accordance with the most current version of SOP 1.1 for the Creation and Maintenance of SOPs. Pending review and approval of the document, the QAO will ensure the SOP is accessible through the SWQB's website.

Personnel who conduct PFAS sampling or those who supervise those who do so must be familiar with this SOP. This SOP is designed to be used for PFAS sampling for surface waters, fish tissue and all sampling activities (i.e., sample collection, preservation, and handling) associated with sample collection. Anyone utilizing this SOP shall comply with procedures prescribed in this SOP to ensure data results are not invalidated.

Staff whose job duties require utilization of procedure described in this SOP are required to sign the SOP acknowledgment statement associated with NMED SWQB SOP for PFAS sampling, prior to sample collection.

3.0 Background and Precautions

3.1 Background

The PFAS are a general group of several thousand anthropogenic (man-made) substances that have been widely used in industrial and consumer applications since the 1940s. PFAS chemicals includes Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonic Acid (PFOS), GenX, and many other chemicals. These synthetic compounds are very persistent in the environment and in the human body – meaning they don't break down, and they can accumulate over time. People are exposed to these compounds through food, food packaging, textiles, electronics, personal hygiene products, consumer products, air,

soils, and drinking water. Studies indicate that continued exposure to low levels of PFAS may result in adverse health effects (USEPA 2019).

The collection of surface water samples to be analyzed for PFAS may support future regulatory determinations; support actions to protect public health; and preserve, protect, and improve New Mexico's surface water quality for present and future generations. The analytical methodologies used to assess the presence of PFAS in drinking water are EPA method 533 and EPA method 537.1[1]. The NMED SWQB will apply this procedure for the analysis of PFAS in NM surface waters when applicable. Laboratories who implement EPA method 1633 or 1621 will be considered adequate for SWQB objectives and goals when the laboratory utilizes the required quality assurance and control procedures according to the specific method(s). Hazardous Waste Test Method SW-846 8327 for Per-and Polyfluoroalkyl Substances (PFAS) by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) may also be considered adequate dependent on project objectives.

3.2 Procedural Precautions

Due to the prevalent nature of PFAS in commonly used sampling materials and personal protective equipment, as well as in clothing, food packaging, and personal care products, samplers must implement careful procedures to prevent cross-contamination of a field sample. Recommendations and requirements include the following:

Field Clothing and PPE for Field Sampling:

- Recommend all cotton clothing.
- Minimize the use of synthetic water-resistant or stain-resistant materials (e.g., waterproof clothing and shoes containing Gore-Tex® or similar materials), and Tyvek® material.
- Minimize the use of fabric softener or anti-static sheets on clothing to be worn.
- Recommend non-waterproof boots.
    - Waders made of Neoprene or other PFAS-free materials may be used.
- Recommended life jackets made of PFAS-free materials.
- Minimize the use of personal hygiene and personal care products (PCPs) (e.g., cosmetics, moisturizers, hand cream, or other related products) that contain PFAS the morning of sampling.[2] The following precautions should be taken when dealing with personal hygiene or PCPs before sampling:
    - Do not handle or apply personal hygiene or PCPs in the sampling area.
    - Do not handle or apply personal hygiene or PCPs while wearing PPE that will be present during sampling.
    - If no other alternative exist and personal hygiene or PCPs must be applied, move to a staging area away from sampling site and remove PPE before applying personal care products.
    - Wash hands thoroughly after the handling or application of PCPs. Prior to resuming sampling, put on a fresh pair of powderless nitrile gloves at sample site.

[1] https://www.epa.gov/pfas

[2] The Michigan Department of Environmental Quality provides acceptable PCPs in their *PFAS Sampling Quick Reference Field Guide* (2018b).

Field Equipment:

- Must utilize high density polyethylene (HDPE), polypropylene, or stainless-steel sampling materials, depending on EPA method utilized.
    - Must not contain Teflon (i.e., polytetrafluoroethylene, PTFE) or low-density polyethylene (LDPE).
- Must use PFAS-free writing implements when taking notes, filling in field forms, and Chain of Custody (COC).
    - Must not use waterproof/weatherproof field books, pens, or markers.
    - Non-waterproof ballpoint pens and pencils are acceptable.
    - Fine or Ultra-Fine Point Sharpie® markers are acceptable.
- Must not use adhesives (e.g., Post-It® Notes) with the exception of laboratory provided sample identification labels and tamper seal tape (e.g., Uline Tamper Seal).
- Must use sealable bags (e.g., Ziploc ® plastic bags) provided by Laboratory or ultra-clean polypropylene or HDPE material sealable bags[3].
- Must not use dry ice, blue ice, or reusable chemical ice.
- Must use powderless nitrile gloves for sample collection.
- If sampling chlorinated water, alert laboratory staff so that sample bottles are preloaded with proper preservative (Trizma® for EPA Method 537.1 and ammonium acetate for EPA Method 533) prior to sample collection.

Other activities and items to avoid:

- Recommend that the vehicle being used for a sampling run be filled with gasoline the day before sampling.
    - If the vehicle used for sampling needs to be filled up between sampling sites, recommend powderless nitrile gloves be used to avoid contamination.
- Avoid sampling during rain if possible.
    - If necessary, recommend vinyl or PVC rain gear.
- Minimize the handling of pre-packaged food, like fast food, during sample collection events.
    - If handling pre-packaged food, staff must wash hands after handling items before sampling resumes.
- Must not consume food or beverages during sample collection.
- Must not utilize tobacco of any form during sampling run (e.g., smoking, chew, dip).

3.3 Safety Precautions

Like any surface water quality sampling, field teams should take precaution when collecting samples for PFAS and should not wade in a stream if the depth (ft) of the stream times the stream velocity (ft/s) is greater than ten (The “RULE OF 10”). General fieldwork awareness and protocol should be implemented at each location prior to commencement of field work.

4.0 Definitions

[3] SC DHEC QAPP/SOP references Ziploc bag as acceptable (https://gis.dhec.sc.gov/Water_Web_Docs/PFAS/SW_PFAS_QAPP.pdf).

For definitions and acronyms not defined in this SOP, refer to the most up to date SWQB *Quality Management Plan for Environmental Information Operations* (NMED/SWQB 2025 or most current).

Accredited laboratory – A laboratory accredited to analyze for PFAS utilizing EPA Method 533, EPA Method 537.1 for drinking water samples.

Laboratory- A laboratory that has a quality assurance system in place that addresses all quality assurance and quality control aspects for EPA method 1633 or 1621. The laboratory does not need to be accredited but each laboratory that uses these methods is required to operate a formal quality assurance program (EPA method 1633 or 1621). The minimum requirements of this program consist of an initial demonstration of laboratory capability, analysis of samples spiked with isotopically labeled compounds to evaluate and document data quality, and analysis of standards and blanks as tests of continued performance. Laboratory performance is compared to established performance criteria to determine if the results of analyses meet the performance characteristics of the method(s).

Chain of Custody (COC) – A chronological paper trail that documents who collected, handled, analyzed, or otherwise controlled samples during a sampling run. To uphold the standards and requirements of the law, it is necessary that chain of custody is an unbroken trail without gaps or discrepancies.

Deionized Water (DI) – Water that has been treated to remove all ions prepared in the analytical laboratory using deionized, or distilled water.

Field sample – A sample collected in the field from a water source, identified as a sample site in sampling run.

Field Reagent Blank (FRB) – A field reagent blank or “field blank” is analyzed to assess the potential for PFAS cross-contamination being introduced during the sampling process and consists of a sample bottled filled at the sample site using PFASS-free reagent water provided by the laboratory. The laboratory will provide the field blank sample bottle, the reagent water, and the preservative (if sampling chlorinated water). The reagent water used for field blanks is transported, unopened, to the field with other sample containers, handled like environmental samples, and shipped to the laboratory for analysis with the collected field samples.

Pools – Still water, low velocity, smooth, glassy surface, usually deep compared to other parts of the channel

Reagent Water – Water demonstrated to be free from the analytes of interest and potentially interfering substances at the method detection limit for the analyte; or purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/3 the MRL for each method analyte of interest (EPA Method 533, 537.1, 1633 or 1621).

Run or Glide – Water moving slowly, with a smooth, unbroken surface. Relatively shallow and low turbulence.

Riffle – Turbulent, shallow flow; water moving, with small ripples, waves and eddies – waves not breaking, surface tension not (or barely) broken. Sound: “babbling”, “gurgling”.

Sampling Run – A grouping of sampling activities that are indicative of a SWQB MASS sampling operation, typically during multi-day collection events that depart and return to the office in a given week (M-F).

5.0 Equipment and Tools

Coordinate the sampling run with the accredited laboratory. The laboratory will provide **PFAS-free** sample bottles, bottle labels, sealable plastic bags, sample preservation, quality control samples, ice chest, and shipping instructions.

Provided by Laboratory

- PFAS-free HDPE bottle fitted with a HDPE screw cap for EPA method 1633 or 1621,
- PFAS- free polypropylene or HDPE bottle with a polypropylene or HDPE screw cap when utilizing EPA method 537.1 or 533
- Plastic bags for sealing samples, typically provided by the laboratory
- Laboratory reagent water for field blank
- Deionized water
- Cooler (e.g., ice chest)

SWQB Equipment and Tools

- PFAS Sampling SOP
- Field forms (electronic and hard copy on non-waterproof paper)
- Powderless nitrile gloves
- Ball point pen or pencil (non-waterproof)
- Alconox® or Liqui-Nox® soap (phosphate free)
- Tamper seal tape (e.g., Uline Tamper Seal)
- Wet ice (non-chemical, no blue ice, no dry ice)

6.0 Step-by-step Process Description

Samples must be collected in a PFAS-free HDPE bottle fitted with HDPE screw cap when utilizing EPA method 1633 or 1621. A PFAS-free polypropylene or HDPE bottle with polypropylene or HDPE cap must be used for EPA method 537.1 or 533. Sampling staff should take practical and appropriate precautions to avoid items that are likely to contain PFAS at the sampling site as well as avoid specific items and activities during the sampling event (see Section 3.2 of this SOP).

Sampling personnel must be minimized, and a team of two is recommended. One team member obtains the samples and the other records sample collection information on the appropriate forms (e.g., COC form and field form). The person conducting the sampling must wear powderless nitrile gloves that must be discarded from the transition from dirty hands to clean hands. A PFAS sampling run should be dedicated to PFAS sampling only to avoid cross-contamination; however, if not possible, PFAS sampling must occur before all other data collection activities at each sampling location. If possible, sampling runs should begin at locations where lower contamination is suspected and progress to locations of higher suspected or known contamination.

6.1 Office Procedures/Preparation (Prior to field work)

An approved Field sampling Plan (FSP) is required prior to sample collection. The field team will become familiarized with sample site location, obtain any special permission required to enter sample site, and will note length of time required to complete sampling run to ensure the sampling run will not exceed sample hold time limitations. The field team will perform the following task before departure for the sampling run and are responsible for:

- Ensuring enough sampling supplies have been provided by the laboratory.
    - Note: SWQB recommends requesting extra sample bottles, labels, and sealable bags. Extra supplies should be stored in a sealable plastic bag made of Ultra-clean polypropylene or HDPE material.
- If possible, pre-label field forms prior to the sampling run with individual "SAMPLE ID" and/or sample location.

6.2 PFAS Sample Collection Procedure

Sample Collection Process at Sample Site
Wash hands with prepared Alconox® or Liquinox® soap and deionized water before sampling. Sampling staff should take practical and appropriate precautions to avoid items that are likely to contain PFAS at the sampling site (see Section 3.2). Upon arrival to first sample location, a field blank should be processed prior to collecting field samples, if required by analytical method. The sampler must wear power-free nitrile gloves, and "clean hands/dirty hands" must be implemented as follows[4]:

- Upon arrival at the first sampling site during a sample run, one member of the sampling team is designated as "dirty hands"; a second member is designated as "clean hands."
- All operations involving contact with the sample bottle are handled by the individual designated as "clean hands."
- "Dirty hands" is responsible for all activities that do not involve direct contact with the sample bottle (e.g., completion of field forms).

The individual identified as "clean hands" should maintain the responsibility throughout the entirety of the sampling run and will be documented as the official sampler for the sampling run.

Field Blank Procedure

The laboratory prepares the reagent water used for field blank in advance according to analytical method being utilized.

For EPA methods 537.1 and 533 the laboratory must provide a "field blank kit". The field blank kit typically consist of a pre-filled bottle with reagent water, that will be transferred to a PFAS free bottle at sample location. SWQB staff should request a field blank kit from laboratory for each planned field sample when using EPA method 537.1 and 533. The field blank must be prepared at the sampling site prior to collecting the field sample as described in the Step-by-step Procedure for Field Blanks.

[4] The clean hands/dirty hands procedure described above has been simplified from EPA Method 1669 (EPA 1969).

EPA method 1633 or 1621, does not require a field blank according to the method(s). However, the NMED SWQB may require a field blank for specific projects dependent on project objectives. If required due to project specific objective, the SWQB will be implementing the requirement of one (1) field blank per sampling run to assess the potential for PFAS cross-contamination introduced during sample collection, processing, and transportation.

Step-by-step Procedure for Field Blanks

1. Remove the sample bottles from the resealable bag.
2. Loosen the lid of the bottle with reagent water.
3. Open the empty bottle.
4. Transfer the reagent water from the first bottle into the second and cap the bottle.
    a. Do not place the bottle cap of the second bottle on any surface, and avoid all contact with the inside of the bottle or its cap.
5. Return the bottle filled with reagent water back into the bag and seal.
6. The sealed bag containing the field blank sample should be placed in an insulated cooler used for shipment or transport during sample collection and submittal to the laboratory.

Equipment Blank Procedure

The laboratory prepares the reagent water used for equipment blank in advance according to analytical method being utilized.

An equipment blank is required when a secondary container is utilized for sample collection. For example, an equipment blank is required when conducting lake sampling due to the use of a Kemmer for sample collection. If an equipment blank is needed the SWQB will be implementing the requirement of one (1) equipment blank per assessment unit during a sample run. The equipment blank is used to assess the potential for PFAS cross-contamination introduced during sample collection, processing, and transportation. If the same secondary container is used for the same assessment unit (e.g., lake) multiple times and no additional assessment units are sampled between sampling events the sampling events will be considered as a single sampling run and only one (1) equipment blank is required.

Step-by-step Procedure for Equipment Blank

1. Remove sample bottles from the resealable bag.
2. Loosen the lid of the bottle with reagent water.
3. Use reagent water provided by laboratory to triple rinse secondary container being used for sampling.
4. After, triple rinsing of secondary sample container, pour reagent water into or through container ensuring reagent water contacts secondary container and then into sample bottle.
    a. Do not place the bottle cap of the second bottle on any surface, and avoid all contact with the inside of the bottle or its cap.
5. Return the bottle filled with reagent water back into the bag and seal. This is the equipment blank.
6. The sealed bag containing the equipment blank sample should be placed in an insulated cooler used for shipment or transport during sample collection and submittal to the laboratory.

The operators are encouraged to return samples as soon as possible to the lab. The samples must arrive at the lab **according to preservation requirements of method used for analysis.**

Field Sample Location

Because some PFAS are known surfactants, the EPA strongly discourages composite sampling for Clean Water Act compliance monitoring.

PFAS sampling of surface water should be conducted at locations representative of ambient stream conditions, generally in the transition between a riffle/run and a pool, or at the toe of a pool, rather than in shallow riffles or deep pools. Samples should be taken where the stream is flowing, well mixed, and preferably more than 6 inches deep. Sample in a location that does not allow streambed sediment or water surface materials to enter sample bottle.

See permit monitoring requirements for sampling of PFAS for National Pollutant Discharge Elimination System (NPDES) purposes.

Field Sample Collection Procedure

1. Wear powderless nitrile gloves while filling and sealing the sample bottles, using a new pair of nitrile gloves at each site.
2. Uncap the sample bottle, do not place the bottle cap on any surface when collecting the sample, and avoid all contact with the inside of the sample bottle or its cap.
3. Fill sample bottle, taking care not to flush out the sample preservation reagent (if included). Samples should be filled to the neck of the bottle.
    a. Immerse the sample container one foot to six inches beneath the surface of the water (if possible) with the container mouth facing upstream.
    b. Sampler (e.g., samplers exposed flesh, boots, clothing, etc.) should be positioned downstream from the opening of the sample bottle to avoid contamination.
    c. When sampling one should ensure not to obstruct flow upstream of sampling container.
4. If a secondary container is required for sample collection, see sample collection procedure in specific SOP (e.g., Lake Sampling or Chemical Sampling in Lotic Environments) and Equipment Blank Procedure in this SOP.
5. After collecting the sample, cap the bottle to ensure the sample bottle is closed and gently agitate by hand until preservative is dissolved (if preservative is present in sample bottle, EPA methods 537.1 and 533).
6. Ensure that the sample bottle is labeled appropriately (i.e., sample ID) and matches the field form (COC may be required dependent on project objectives).
7. Place the sample bottle(s) in an individual sealed plastic bag (provided by the laboratory), and then into the ice chest.
8. Sample bottle(s) cannot be in direct contact with ice, so for additional quality control place all wet ice in resealable (not containing sample) before adding to ice chest.
    a. Note: Do not use dry ice, blue ice, or reusable chemical ice
9. Samples should be stored in an ice chest at least 1/3 filled with wet ice.
10. If possible, have sample bottles remain upright after filling. Keep water drained in ice chest to avoid potential cross-contamination.
11. Staff should try to avoid contact with samples after placing them in ice chest. If possible, personnel should only handle individually sealed bags.
12. Ensure cooler lids are closed before proceeding to the next site.
13. Remove and discard powderless nitrile gloves after each field sample collection.

Table 1 summarizes quality control requirements for PFAS sampling:

Table 1. PFAS Sample Summary Information Surface Water

Parameter	Minimum Requirements
Sample volume	- 500 mL (dependent on laboratory), typically collected in two (2) 250 mL HDPE bottles
Container/cap	- Dependent on EPA method used for analysis. HDPE is universal for all EPA methods.
Sample preservation	- Trizma® for EPA Method 537.1; and - Ammonium acetate for EPA Method 533 - No preservative is required for non-chlorinated water - No preservative required for EPA Method 1633 or 1621
Temperature -Sample storage prior to arriving at laboratory	- 0- 6°C (42.8°F), but not frozen when utilizing EPA methods 537.1 and 533 - ≤ 6°C (50°F) when utilizing EPA method 1633 or 1621
Sample Collection Holding Time	- Dependent on Method used for analysis
Field Blank	- One per sample site when utilizing EPA methods 537.1 and 533. - Not required for EPA method 1633 or 1621.
Equipment Blank	- One per sample run when utilizing a secondary container.
Laboratory Holding Time - Extraction - Analyses	 - Dependent on Method used for analysis - Dependent on Method used for analysis

6.3 Sample Handling and Shipping Procedure for Laboratory Analysis

Samples should be stored in a cooler according to procedure identified in Section 6.2 above. Also see Table 1 PFAS Sample Summary Information Surface Water.

- Field samples should be stored in a cooler that is ≤ 6°C (42.8°F) while independently enclosed in their individually sealed bags.
- Samples must arrive at the laboratory at a temperature ≤ 6°C (42.8°F) **according to method used for analysis.**

NOTE: The laboratory may need a few days for extraction so plan accordingly. (EPA methods 533, 537.1, 1633 and 1621)

If delivery to the laboratory is not possible, samples should be stored at a temperature ≤ 6°C (42.8°F) away from light in a secure location. If samples are stored at the SWQB laboratory awaiting delivery, samples should be stored in a sealed cooler with tape (e.g., Uline Tamper Seal). If samples need to be shipped, staff should follow the shipping procedure described in this SOP, see the Sampling Shipping Procedure below.

Sample Shipping Procedure

1. Ensure that the bottles cannot move sideways or be turned upside down. Any extra space should be packed with ice to 1/3 the depth of the ice chest.
    a. Note: Ice should never be in direct contact with sample containers
2. If samples are shipped to a laboratory, a COC must accompany all samples. COC form is an integral part of sample quality control.
3. Each ice chest should include a separate COC if multiple ice chests are used for shipping. Retain the sender's copy
4. Place the COC in a sealed plastic bag (1 gallon) and tape it to the outside of the cooler lid or place in shipping box along with ice chest.
5. Seal the ice chest firmly with tape (e.g., Uline Tamper Seal), wrapping it around multiple times.
6. Attach plastic overnight carrier tags to the ice chest, retain the marked sender's copy for the record tracking number.
7. Provide the shipping information to the laboratory and communicate the expected time of arrival of the samples.

6.4 Laboratory Sample Analysis

Samples analyzed for PFAS must be analyzed at a laboratory utilizing the following methods or equivalent: EPA method 533, EPA method 537.1, EPA method 1633, or EPA method 1621. A list of analytes for each EPA method conducted by the laboratory can be provided upon request and is lab specific. NPDES permit requirements specify the method for permit purposes.

- The laboratory will store samples ≤ 6°C (42.8°F) and away from sunlight.
- Laboratory extraction should be as soon as possible but must be extracted within method specifications.
- When stored at or below -20°C and protected from the light, aqueous samples may be held for up to 90 days for all analytes when utilizing EPA method 1633 or 1621.

For more information regarding PFAS analyses, please visit: https://www.epa.gov/pfas.

EPA method SW-846 Test Method 8327: Per-and Polyfluoroalkyl Substances (PFAS) by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) is also an acceptable method but is intended for Hazardous Waste. SW-846 Test Method 8327 currently has similar quality control processes to EPA Method 1633, however, always reference the specific method for exact details.

PFAS reporting to the SWQB must be through an electronic data transfer process and will include reported results in a pdf report (if requested), as well as an electronic data deliverable. The laboratory will report sample identification number, PFAS compound result, method detection limit, method reporting limits,

and sample detection limit for each sample. PFAS data results will be uploaded into SQUID by the QAO. Results awaiting upload will be stored in a secure location within the SWQB network drive.

6.5 Tissue Collection for Fish Consumption Advisory

Fish will be sampled, processed, and submitted for laboratory analysis according to the procedures outlined in SOP 11.5 Fish Consumption Advisory Program. Expansions upon these procedures are necessary when sampling to evaluate PFAS levels. These expansions are summarized in the sections below.

Sampling in Lakes
The sampler identified as "dirty hands" will assist with the retrieval of trammel nets and must take care to minimize contact with fish upon collection. The sampler identified as "clean hands" will be assigned to handling, measuring, packaging, and storing fish. Powderless nitrile gloves must be worn and changed frequently to prevent cross-contamination between fish and sampling equipment (boat, weights, floats). Once collected and removed from nets, fish are measured on a PFAS-free measuring board and placed in polyethylene bags. Date of collection, species, and specimen length are recorded on the polyethylene bag with a Fine or Ultra-Fine Point Sharpie®. Samples are placed on wet ice in coolers.

Processing Fish for Tissue Samples
Staff designated as "clean hands" will handle, fillet, and package samples. Powderless nitrile gloves must be worn when processing fish for tissue samples and changed between each fish sample or when cross contamination with laboratory equipment is suspected. Processing equipment and supplies (knives, weight scale, processing surfaces) must be rinsed with deionized water before processing begins and between each fish sample. Fish will come into direct contact with processing equipment and therefore all processing equipment and supplies should be PFAS-free. Staff designated as "dirty hands" will record fillet weights, sample identification numbers, and number of composites per sample (if applicable) on laboratory chain of custody forms.

Hold Times
Hold times may vary by method and laboratory preference. The following hold time guidelines, provided by the analytical laboratory, should not be exceeded, if possible.

PFAS – 90 days from the date of fish tissue collection.

Laboratory Submittal
Fillets are processed and composited into polyethylene bags by species and size class and should be frozen before shipment. To protect from cross-contamination each composite sample is doubled bagged. Dry ice or wet ice (non-chemical, no blue ice) is used in coolers to ship samples overnight to the analytical laboratory. Tissue samples will be sent to an accredited lab that is certified to analyze PFAS in fish tissue using EPA Method 1633 (or equivalent).

7.0 Data and Records Management

SWQB fills out a Stream and River Field Data Form at every sample station to document information obtained during the sampling event. A COC form may also be needed dependent on project objectives and contract laboratory requirements. If a COC is required, it will be saved in QAQC folder on the SWQB

network. The Stream and River Field Data Form is then published and filed in the SWQB project folder after data collection is complete. Information collected at sampling station recorded on the Stream and River Field Data Form are then uploaded into SQUID. Refer to the section below regarding SQUID upload instructions.

7.1 Uploading PFAS Sampling Event into Squid

To upload PFAS sampling event information for a sample station, either upload the data manually or use the macro-enabled Excel spreadsheet.

7.1.2 Upload PFAS Sampling Event Into SQUID Using Macro-enabled SLD Submittal Form

- Locate the most recent version of the macro-enabled SLD Submittal Form (available on the SWQB SOP website).
- Insert the correct survey name and year, user code for the survey (listed in the “lists” tab) and the collectors contact information as well as the date and approximate time of laboratory submittal.
- Make sure that all chemical sampling event data sheets for the sampling run are complete and published.
- In the SLD Submittal form instructions tab select “Select Files” and navigate to the project folder containing the published final drafts of the chemical sampling (Stream/River Field Data Form). Select all applicable chemical sampling events and flow events for upload.
- In the SLD Submittal form instructions tab select “create submittals.” The resulting submittals in the chemical suite tabs are the forms that are submitted to SLD when chemical samples are delivered for analysis. Each chemical suite sheet should contain the sample RID and a corresponding barcode (requires special computer software listed on the instructions tab), the collection date and time, the conductivity, and all appropriate header information.
- After sample RIDs are confirmed and successfully submitted to the laboratory for analysis, proceed with the chemical sampling event data upload in SQUID.
- Ensure that all data is complete and create a .csv file from the combined data tab in the SLD Submittal form.
- In SQUID, select the “data management” tab at the upper left corner of the database, and select “imports” from the drop-down menu. In the “imports” sub-menu select “sampling event data.”
- The Import Sampling Event Data page should open. Select the applicable project from the project field menu, and then select “choose file.” Navigate to the .csv version of the sampling event data and then select “open.” In SQUID, select “upload file.”
- Ensure that there are no invalid records found with error messages. Error messages will appear as a red exclamation point in the “valid” column along with the message “X invalid records found.” Correct errors if invalid records are found. Once there are no invalid records, select “import all valid records.” A notification that upload was successful should appear.
- Navigate to the project folder and select a station to ensure that the sampling events were successfully uploaded.

7.1.3. Upload PFAS Sampling Event Manually to SQUID

- Navigate to the applicable project folder in SQUID by selecting the "project" tab on the navigation bar, then selecting the appropriate folder icon with a green arrow under the "View/Add Monitoring Locations" column.
- All stations that have been added to the selected project folder should appear. To upload a chemical sampling event to a particular station, select the folder icon with a green arrow under the "sampling events" column for that particular sampling station.
- In the Sampling Events page, select "add a new sampling event" in the top navigational bar. Select a sampling event type from the drop-down menu. For River/Stream chemical sampling event data select "RIVER/STREAM-CHEMICAL." Select the "add new sampling event."
- A sampling event details box will appear. Populate the fields in the general tab with the appropriate data.
- In the RIDS tab, enter the number of RIDs associated with that station. Enter the RID and select each corresponding Analyte Suite from the drop-down menu.
- In the Field Measurements tab, enter all sonde data that was collected at the time of sampling. Indicate a flow condition rating associated with the event. This rating should correspond to the rating from the flow section of the Stream/River Field Data Form. **Note:* that a flow event will not be created when chemical sampling events are manually uploaded and will have to be created for the station separately
- Select "save." The chemical sampling event and associated RIDs should appear under the sampling events.
- Navigate to the project folder and select a station to ensure that the sampling events were successfully uploaded.

7.2 Upload of Chemical Analytical Results

The QAO uploads all chemical results which include PFAS data. See QAO for additional details regarding data upload procedure for PFAS.

8.0 Quality Control and Quality Assurance

For PFAS sampling, the SWQB requires a field blank for every field sample (source sample) collected when utilizing EPA method 537.1 or 533. EPA method 1633 or 1621 does not require a field blank. However, the NMED SWQB may require one (1) field blank for each sampling run dependent on project objectives. An equipment blank is required for all analytical methods when utilizing a secondary container for sample collection. Quality control procedure(s) must be discussed with the laboratory to ensure proper sample containers and quality control reagents are on hand for the field sampling event.

The SWQB ensures quality controls for PFAS sampling by using standardized methods documented in this SOP. All personnel who collect PFAS samples must be familiar with these protocols, sign the acknowledgment form associated with this specific SOP, and collect sample in accordance with the procedures defined in this SOP. If, at any time, the QAO determines this process is not being adhered to, the QAO has the authority to cease activities specific to this SOP with prior support and approval by the SWQB Bureau Chief and MASS Program Manager, until such a time that the issue can be resolved.

9.0 Related Forms

Stream and River Field Data Form
COC forms
SLD PFAS Analyte List
SLD UCMR 5 PFAS 533 Collection Instructions
SLD UCMR 5 PFAS 537.1 Collection Instructions
Contract Laboratory Analyte List and Sample Collection Instructions.

10.0 Revision History

Original: June 21, 2023.
Miguel Montoya, QAO; Lynette Guevara, Program Manager MASS

Revision 1. November 20, 2025. SOP updated to reflect changes to analytical methods. Added the requirement for an equipment blank when using a secondary sample container. Added other acceptable analyses for Per-and Polyfluoroalkyl Substances.
Emily Miller, QAO; Lynette Guevara, Program Manager MASS

11.0 References

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