Region 4 **U.S. Environmental Protection Agency** **Laboratory Services and Applied Science Division** **Athens, Georgia**	
OPERATING PROCEDURE	
Title: Field Equipment Cleaning and Decontamination at the FEC	ID: ASBPROC-206-R4 *Formerly SESDPROC-206-R3*
Issuing Authority: Chief, Applied Science Branch	
Effective Date: October 3, 2019	Review Due Date: October 3, 2023

Purpose

This document describes general and specific procedures, methods and considerations to be used and observed when cleaning and decontaminating sampling equipment at the LSASD Field Equipment Center (FEC). For the purpose of this procedure, decontamination refers to the removal of contaminants from sampling, drilling and other field equipment to concentrations that do not impact study objectives.

Scope

Decontamination procedures outlined in this document are intended for use at the FEC for decontaminating sampling and other field equipment. These procedures are not intended to be used in the field. Procedures for use in the field are in found in the LSASD Operating Procedure for Field Equipment Cleaning and Decontamination, SESDPROC-205. Mention of trade names or commercial products in this operating procedure does not constitute endorsement or recommendation for use.

Sampling and other field equipment decontaminated in accordance with these procedures will meet the minimum requirements for Data Quality Objective (DQO) Definitive Data Collection. Site-specific alterations to these procedures will be approved by the project leader and Section Chief, and they will be transmitted in writing to FEC personnel. This transmittal will be documented by the Project Leader in the associated LSASD project file for the field investigation. The deviations will also be documented in the Sampling and Analysis Plan (SAP) prepared for the investigation.

Table of Contents

1 General Information

1.1 Documentation/Verification

This procedure was prepared by persons deemed technically competent by LSASD management, based on their knowledge, skills and abilities. The official copy of this procedure resides on the LSASD Local Area Network (LAN). The Document Control Coordinator (DCC) is responsible for ensuring the most recent version of the procedure is placed on the LAN and for maintaining records of review conducted prior to its issuance.

1.2 Definitions

- Deionized Water: Tap water that has been treated by passing through a standard deionizing resin column. At a minimum, the finished water should contain no detectable heavy metals or other inorganic compounds (i.e., at or above analytical detection limits) as defined by a standard inductively coupled Argon Plasma Spectrophotometer (ICP) (or equivalent) scan. Deionized water obtained by other methods is acceptable, as long as it meets the above analytical criteria. Organic-free water may be substituted for deionized water.

- Detergent: shall be a standard brand of phosphate-free laboratory detergent such as Liquinox® or Luminox®. Liquinox® is a traditional anionic laboratory detergent and is used for general cleaning and where there is concern for the stability of the cleaned items in harsher cleaners. Luminox® is a specialized detergent with the capability of removing oils and organic contamination. It is used in lieu of a solvent rinse step in FEC cleaning of equipment for trace contaminant sampling.

- Nitric acid solution (10%): shall be made from reagent-grade nitric acid and deionized water. Nitric acid solutions used to clean equipment cannot be reused.

- Organic-free Water: Tap water that has been treated with activated carbon and deionizing units. At a minimum, the finished water must meet the analytical criteria of deionized water and it should contain no detectable pesticides, herbicides, or extractable organic compounds, and no volatile organic compounds above minimum detectable levels as determined by the Region 4 laboratory for a given set of analyses. Organic-free water obtained by other methods is acceptable, as long as it meets the above analytical criteria.

- Solvents (e.g., pesticide-grade isopropanol or other solvents): may be used for a particular investigation if needed. Pesticide-grade acetone or methanol are acceptable. However, it should be noted that if pesticide-grade isopropanol or acetone is used, the detection of acetone in samples collected with solvent rinsed equipment is considered suspect. Pesticide-grade methanol is much more hazardous to use than either pesticide-grade acetone or isopropanol, therefore its use is discouraged. Solvents used to clean equipment cannot be reused. A solvent rinsing step has in the past been a standard part of cleaning equipment for trace contaminant sampling. This step has been eliminated

for most equipment cleaning and has been replaced with an initial washing in Luminox® detergent.

- Tap Water: is water from any potable water supply. Deionized water or organic-free water may be substituted for tap water.

- PFAS-free Water: is tap, deionized, organic-free or laboratory polished water that has been demonstrated to contain no detectable per- and poly- fluoroalkyl substances (PFAS) above the minimum detectable levels of the laboratory for the given analytical method.

1.3 General Precautions

1.3.1 Safety

Proper safety precautions must be observed when decontaminating dirty sampling equipment. Refer to the LSASD Safety, Health and Environmental Management Program (SHEMP) Procedures and Policy Manual and any pertinent site-specific Health and Safety Plans (HASP) for guidelines on safety precautions. These guidelines, however, should only be used to complement the judgment of an experienced professional. Some materials used to implement the decontamination procedures outlined in this procedure are harmful if used improperly. Caution should be exercised, and all applicable safety procedures shall be followed. At a minimum, the following precautions shall be taken in the washroom during these operations:

- Safety glasses with splash shields or goggles, gloves and safety boots will be worn during all decontamination operations. A neoprene apron and neoprene gloves are also required during acid rinsing.

- All solvent rinsing operations will be conducted under a fume hood or in the open (never in a closed room).

- No eating, smoking, drinking, chewing, or any hand to mouth contact shall be permitted during decontamination operations.

1.3.2 Procedural Precaution

After decontamination, equipment should be handled only by personnel wearing clean latex or nitrile gloves to prevent re-contamination.

After the decontaminated equipment is wrapped and sealed in plastic, the date that the equipment was decontaminated should be written on the plastic. If the equipment was not decontaminated according to this operating procedure, this should also be noted on the plastic. Equipment decontaminated using Section 4.3 of this procedure should be labeled "PFAS" to designate that it is appropriate to collect samples that will be analyzed for per- and poly-fluoroalkyl substances (PFAS). Sampling equipment and or containers must be

transported/stored separate from gasoline, oil, grease, solvents, pesticides or any other possible contaminant.

When equipment and containers used to collect samples containing oil, grease, or other hard to remove materials cannot be decontaminated using any of the procedures described in this document, they should be disposed of properly.

2 Introduction to Equipment Cleaning and Decontamination

2.1 General

Procedures included in this operating procedure are intended for use by FEC personnel for decontaminating sampling equipment. Sampling and field equipment decontaminated in accordance with these procedures must meet the minimum requirements for the Data Quality Objectives (DQOs) of the study or investigation.

2.2 Handling Practices and Containers for Decontamination Solutions

Improperly handled decontamination solutions may easily become contaminated. Containers should be constructed of the proper materials to ensure their integrity. Following are the materials to be used for storing the specified decontamination materials:

- Detergent should be kept in clean containers until use. It should be poured directly from the container.
- Solvents should be stored in the unopened original containers until used. Solvents may be applied using the low-pressure nitrogen system fitted with a Teflon® nozzle, or by using Teflon® squeeze bottles. Note: Teflon containers or components cannot be used for solvent that will be used to decontaminate sampling equipment that will be analyzed for PFAS.
- Tap Water may be kept in tanks, squeeze bottles or applied directly from a hose.
- Deionized Water should be stored in cleaned containers that can be closed when not being used. It may be applied from squeeze bottles.
- Organic-free Water should be stored in cleaned glass, Teflon® or stainless steel containers prior to use. It may be applied using Teflon® squeeze bottles, or directly from the system.
- PFAS-free Water should be stored in either high density polyethylene (HDPE) or polypropylene or a combination of both.
- Nitric acid should be kept in the glass container it is received in and placed in squeeze bottles prior to application.

2.3 Disposal of Spent Decontamination Solutions

Procedures for safe handling and disposition of spent decontamination solutions, including washwater, rinse water, spent acid solutions, and spent solvents are as follows:

Washwater/Rinsewater: Waters from equipment decontamination at the FEC may be disposed in the sanitary drain in the washroom. When large equipment (vehicles, augers, etc.) is washed or rinsed outside, it may go onto the ground without recovery.

Nitric Acid: Nitric acid decontamination solutions may be discharged when a pH is greater than 2.0 by flushing down the sanitary drain in the washroom.

Solvent: All solvents used should be captured, properly labeled, and stored on the premises of the FEC until arrangements for proper disposal are made. Used solvents can be classified as either "solvent for recovery" or "solvent for disposal." Solvent for recovery is that which was used at the FEC for decontamination of equipment. Solvent used for decontaminating badly contaminated equipment (e.g., tar removal, etc.) should be designated for disposal. The two groups should be labeled "For Recovery" or "For Disposal" and stored separately at the FEC. As solvents are rarely used for equipment cleaning at the FEC, it may not be practicable to recover the spent solvents.

2.4 Initial Processing of Returned Equipment

Field or sampling equipment that needs to be repaired will be identified with a "repair" tag. Any problems encountered with the equipment and specific required repairs shall be noted on this tag, as well as the date and the initials of the investigator. Field equipment or reusable sample containers needing decontamination or repairs will not be stored with clean equipment, sample tubing, or sample containers.

All unused plastic wrapped equipment, containers, and tubing will be examined when the equipment is returned from the field. Any items for which the plastic wrapping is not torn or soiled may be placed back into stock.

3 Sampling Equipment Used for Sampling of Trace Organic and Inorganic Constituents

Sampling equipment used to collect samples undergoing trace organic and/or inorganic constituent analyses should be thoroughly decontaminated. The following procedures are to be used.

3.1 Standard FEC Decontamination Procedure

1. Wash equipment thoroughly with Luminox® detergent and hot tap water using a brush or scrub pad to remove any particulate matter or surface film.

2. Rinse equipment thoroughly with hot tap water.

3. Rinse equipment thoroughly with organic-free water.

4. Completely air dry.

5. Seal the equipment in plastic and label.

3.2 Procedures for Decontaminating Glass Pans at the FEC

1. Wash equipment thoroughly with Luminox® detergent and hot tap water using a brush or scrub pad to remove any particulate matter or surface film.

2. Rinse equipment thoroughly with hot tap water.

3. Rinse equipment with 10 percent nitric acid solution. Fresh nitric acid solution should be prepared for each decontamination session.

4. Rinse equipment thoroughly with organic-free water.

5. Completely air dry.

6. Seal the pans in plastic and label.

NOTE: Glass pans are not recommended for mixing samples that will be analyzed for PFAS.

4 Equipment Used for Sample Collection for Analyses of Per- and Poly-Fluoroalkyl Substances (PFAS)

4.1 General

Special decontamination procedures are required for per- and poly-fluoroalkyl substances (PFAS) sampling and decontamination to eliminate the possibility of interference from equipment, components or solutions suspected to contain PFAS-related substances as part of the material or manufacturing process. For example, sample containers and equipment may not be made of Teflon®, and decontamination solutions may not contact Teflon®. The following procedures, reflecting an absence of materials made with per fluorinated compounds, are to be used.

4.2 Special Handling Precautions for PFAS Sampling Equipment

PFAS are ubiquitous and found in many commercial items including clothing, waterproof paper, Post-it® notes, aluminum foil, sample container lid liners, coated Tyvek®, packaging of pre-wrapped foods or snacks, etc. In addition, the method detection limits for PFAS analyses are extremely low (typically nanograms per liter, ng/L or nanograms per kilogram, ng/kg). Consequently, extreme care is required for equipment selection, and when handling decontamination solutions and equipment that will be used to collect samples for PFAS analyses.

Current EPA guidance recommends sample containers be made of high-density polyethylene (HDPE) and/or polypropylene. Other guidance documents recommend that direct sampling equipment be made of HDPE, polypropylene, or stainless steel. Materials to avoid include: Teflon® or polytetrafluoroethylene (PTFE), equipment containing fluorinated materials, waterproof coatings containing PFAS, low density polyethylene (LDPE) and glass (ITRC 2018, DoD 2016, and WA-DER 2017).

New gloves need to be worn when decontaminating and handling sampling equipment. When worn gloves become compromised by potential PFAS containing materials, they need to be changed for new gloves. Both nitrile and latex gloves have been successfully used in past PFAS sampling investigations.

Improperly handled cleaning solutions may easily become contaminated and should be kept in original container, when possible. Storage and application containers must be constructed of polypropylene, HDPE, or a combination of both

Once decontaminated, sampling equipment should be kept wrapped in plastic until ready for use. Also, sample containers should be kept covered in original packaging or in plastic bags until ready for use.

4.3 Decontamination Procedure for Equipment used for Sample Collection for Per- and Poly-Fluoroalkyl Substances (PFAS)

For samples undergoing PFAS analyses, the following procedures are to be used for all sampling equipment or components of equipment that come in contact with the sample:

1. Clean with tap water and Luminox® detergent using a brush, if necessary, to remove particulate matter and surface films. Note: DoD 2017 states that Alconox® and Liquinox® have been successfully used to decontaminate sampling equipment for PFAS analyses. Do not use detergents that contain fluoro-surfactants.

2. Rinse thoroughly with tap water.

3. Rinse thoroughly with PFAS-free water.

4. Place on clean plastic sheeting to air-dry. If the equipment is to be stored overnight, it should be covered and secured with clean, unused plastic sheeting.

5. Wrap equipment in plastic and label for storage and/or transport prior to use.

   NOTE: Do not wrap equipment in aluminum foil due to the potential of PFAS cross-contamination.

4.4 Quality Control Samples for PFAS Sample Equipment

Even though quality control samples collected from decontamination solutions, gloves, sample containers and Whirl-paks® may have previously shown no detectable PFAS analytes, it is prudent to test them frequently due to varying vendors and/or lots.

For samples undergoing PFAS analyses, it is extremely important that quality control samples be collected as part of the investigation to demonstrate the PFAS contribution of the sample containers, decontamination solutions, gloves, decontaminated equipment and plastic used to store equipment. Equipment rinse blanks should be collected from decontaminated sampling equipment by slowly pouring PFAS-free water into and/or over the device and into a sample container that will be analyzed for PFAS.

It is also important to take field quality control samples such as additional equipment blanks, material blanks, field blanks, field duplicates, and trip blanks to evaluate the sampling and sample handling activities of PFAS investigations. The number of quality control samples should be proportional to the size and scope of the investigation, and the number of previous investigations using the same equipment for the same sample media. Other factors that affect the number and types of quality control samples should be the types of sampling activities, number of sample teams, types of sample media, and the types and number of sampling equipment used during an investigation.

If samples are collected for PFAS analysis and are also collected for trace organic and/or inorganic constituent analyses during the same study, the data quality objectives (DQOs) should prioritize the site contaminants. The sample design should include decontamination, equipment and sample

order, and should be selected that best accommodates the study's DQOs. Quality control samples should be used to assess any modifications to routine operating procedures.

5 Automatic Wastewater Sampling Equipment

5.1 Automatic Samplers

1. The exterior and accessible interior (excluding the waterproof timing mechanism) portions of the automatic samplers will be washed with Liquinox® detergent and tap water then rinsed with tap water.

2. Desiccant in the flow meters should be checked and replaced, if necessary, each time the equipment is decontaminated.

3. The face of the timing case mechanism will be cleaned with a clean damp cloth.

4. Tubing (sample intake and pump tubing) will be discarded after each use and new Silastic® pump tubing will be installed.

5.2 Distributor Arm

1. Clean with hot tap water, Liquinox® detergent, and a brush.

2. Rinse thoroughly with deionized water.

3. Replace in sampler.

5.3 All Automatic Sampler Headers

1. Disassemble header and using a bottle brush, wash with Liquinox® detergent and hot tap water.

2. Rinse thoroughly with deionized water.

3. Dry thoroughly, then reassemble header.

4. Seal in plastic.

5.4 Reusable Composite Sample Containers

1. Wash containers thoroughly with Liquinox® detergent and hot tap water, using a bottle brush to remove particulate matter and surface film.

2. Rinse containers thoroughly with hot tap water.

3. Rinse containers with 10 percent nitric acid.

4. Rinse containers thoroughly with tap water.

5. Rinse containers thoroughly with deionized water.

6. Air dry.

7. Cap with plastic or Teflon® film.

5.5 Glass Sequential Bottles for GC/MS Analyses

1. Rinse with 10 percent nitric acid.

2. Rinse thoroughly with tap water.

3. Wash using Luminox® detergent, followed by tap and deionized water rinses.

4. Air dry.

5. Replace in covered, automatic sampler base; cover with plastic for storage and mark the base as follows: "Cleaned for organic analyses."

6 Procedures for Tubing

6.1 Teflon® Sample Tubing

Tubing rolls which have been QC sampled by lots and determined to be contaminant-free per SESDPROC(011) Field Sampling Quality Control, can be used without further consideration.

An inventory of Teflon® tubing precut to appropriate lengths (e.g., 15, 25, or 35 foot) shall be maintained for convenience. The precut tubing will be wrapped in aluminum foil and sealed in plastic.

6.2 High density polyethylene (HDPE) Sample Tubing for PFAS Analysis

HDPE tubing should be used to collect samples that will be analyzed for PFAS. Tubing rolls should be QC sampled by lots and determined to be contaminant-free per SESDPROC(011) Field Sampling Quality Control. HDPE tubing should be cut to desired lengths and sealed in plastic.

7 Procedures for Miscellaneous Equipment

7.1 Well Sounders or Tapes

1. Wash with Liquinox® detergent and tap water.
2. Rinse with hot tap water.
3. Rinse with deionized water.
4. Allow to air dry overnight.

7.2 Grundfos Redi-Flo2® Pump

CAUTION – *Do not wet the controller. Always disconnect power from the pump when handling the pump body.*

Controller Box Decontamination:

1. Wipe the controller box with a damp cloth. Immediately remove any excess water.
2. Let the controller box dry completely.

Pump Decontamination:

Materials:
Standard FEC cleaning materials
Valved hose wye fitting
Pressure gauge (0-150psi)
Large screwdriver or quarter for motor plug
Hex wrench for bottom motor housing bolts
Small screwdriver for screen screw

1. Remove check valves and adapter fittings and clean separately.
2. Remove intake screen retaining screw and slide upward off pump.
3. Inspect electrical cable near pump intake for chafing, breaks, and exposed conductors. If repair is required, perform rudimentary cleaning of pump, reassemble, and red-tag for repair.
4. Unscrew turbine housing from top of pump and remove turbine assembly from housing. Disassemble turbine assembly and clean all parts as per procedures for general sampling equipment.
5. Remove bottom plug from motor. Remove the three screws from bottom of pump housing with hex wrench, remove bottom motor cover and slide rotor out of motor casing. Red-tag motor for seal repair if excess grit or dirt in motor case is present. Wash motor case, rotor, and bottom components in Liquinox® detergent and rinse with tap and DI water.

6. Invert motor housing and slide rotor into housing. Fill motor housing with organic-free water while jogging rotor up and down to release trapped air. Reassemble bottom of motor housing and tighten screws.
7. Finish filling motor housing with organic-free water while continuing to jog rotor up and down. Replace plug in lower housing while exercising care to not capture air in housing. If water leaks out of seal at the turbine end of the motor housing while filling, red-tag motor for seal repair.
8. Reassemble turbine assembly per Grundfos diagrams and replace intake screen and screw.
9. Perform operations check of pump in plastic bucket of water. Do not touch pump or bucket while pump is connected to controller. With pump at maximum RPM, test for visual indication of free flow and lack of excessive noise or vibration. Connect pump outlet to a wye fitting and pressure gauge. After bleeding air out of pump from open end of wye, test for zero-flow 'deadhead' pressure at half and full speed on Grundfos pump curves. If pump fails to meet 75% of 'deadhead' ratings or generates excessive noise, red-tag pump for repair. (Pressure in psi = -head on ratings curve / 2.31).
10. Clean cable and reel per standard procedures.
11. Perform final wash of pump by immersing and running pump in containers of Luminox®, tap water, and organic-free water. Conduct final rinse of pump with organic-free water over pump and through pump turbine.

12. Using a brush or scrub pad, clean the electrical cable with Luminox® detergent and then rinse with tap water and organic free water.

13. Completely air dry.

14. Place the pump in clean plastic bag.

<u>To decontaminate the Redi-Flo2® ball check valve:</u>

1. Remove the ball check valve from the pump head. Check for wear and/or corrosion and replace as needed.

2. Using a brush, scrub all components with detergent and tap water.

3. Rinse with organic-free water.

4. Completely air dry.

7.3 Mega-Monsoon® and GeoSub® Electric Submersible Pump

Materials:
Standard FEC cleaning materials
Motor head wrench (Monsoon)
Valved hose wye fitting and pump adapter.
Pressure gauge (0-150psi)

1. Remove check valves and adapter fittings and clean separately.
2. Inspect electrical cable near pump intake for chafing, breaks, and exposed conductors. If repair is required, perform rudimentary cleaning of pump, reassemble, and red-tag for repair.
3. Remove the outer motor housing by holding the top of the pump head with a wrench and then unscrewing and pulling the outer housing from its O-ring seat.
4. Clean all pump components per the provisions of section 3.1. Use a small bottle brush for the pump head passages
5. Wet the O-ring with organic-free water. Reassemble the outer pump housing to the pump head.
6. Perform operations check of pump in plastic bucket of water. With pump at maximum RPM, test for visual indication of free flow and lack of excessive noise or vibration. Connect pump outlet to a wye fitting and pressure gauge. After bleeding air out of pump from open end of wye, test for zero-flow 'deadhead' pressure at half and full speed on the relevant pump curves. If pump fails to meet 75% of 'deadhead' ratings or generates excessive noise, red-tag pump for repair. (Pressure in psi = pressure head on ratings curve / 2.31).
7. Clean cable and reel per Section 3.1.
8. Perform final wash of pump by immersing and running pump in containers of Luminox®, tap water, and organic-free water. Conduct final rinse of pump with organic-free water over pump and through pump turbine.

7.4 Bladder Pumps

The Geotech® bladder pump and Geoprobe Systems® mechanical bladder pump can be cleaned similarly.

1. Discard any tubing returned with the pump.

2. Completely disassemble the pump, being careful to note the initial position of and retain any loose ball checks.

3. Discard pump bladder.

4. Clean all parts as per the standard cleaning procedure in Section 3.1.

5. Install a new Teflon® bladder and reassemble pump.

7.5 Direct Push Rig, Grout Mixer, and Associated Equipment

Upon return to the FEC, direct push equipment must be cleaned, as follows:

A thorough cleaning of the direct push rig is required at the end of each study. At a minimum, the rig should be cleaned with a pressure sprayer.

Direct push tooling (hand tools, adapters etc.) other than sampling tools shall be decontaminated as below. Sampling equipment such as screen point samplers and piston samplers should be cleaned per the general provisions of Section 3.1:

1. Inspect thoroughly. If severe rust, corrosion, paint, or hardened grout is present the equipment may require sandblasting prior to decontamination.

2. Wash with tap water and Luminox® detergent, using a brush if necessary, to remove particulate matter and surface films. Pressure spraying or a power wire brush (high pressure hot water with detergent) may be necessary to remove matter that is difficult to remove. Direct Push equipment that has been cleaned outdoors should be placed on racks or saw horses at least two feet above ground. Hollow tooling should be decontaminated on the inside and outside.

3. Rinse thoroughly with tap water.

4. Let completely air dry. Remove and cover with clean, unused plastic and label.

At the direction of the project leader or Quality Assurance Officer, this equipment may be decontaminated as specified in Section 3.1 prior to use.

7.6 Field Analytical Equipment

Field instruments for in-situ water analysis should be wiped with a clean, damp cloth or sponge. The probes on these instruments (pH, conductivity, DO, etc.), should be rinsed with deionized water and air dried.

Any desiccant in these instruments should be checked and replaced, if necessary, each time the equipment is decontaminated.

7.7 Ice Chests and Shipping Containers

Ice chests and reusable containers shall be washed with Liquinox® detergent (interior and exterior) and rinsed with tap water and air dried before storage. If, in the opinion of the field investigators, the container is severely contaminated with concentrated waste or other toxic material, it shall be cleaned as thoroughly as possible, rendered unusable, and properly disposed.

7.8 Organic-Free Water and Deionized Water Glass Storage Containers

NOTE: This section applies to reusable containers such as glass carboys. These containers should be used only for transporting organic-free or deionized water. Sample containers that have been QA-verified may be used for this purpose without further cleaning.

1. Wash containers thoroughly (interior and exterior) with hot tap water and Luminox® detergent, using a bottle brush to remove particulate matter and surface film.

2. Rinse containers thoroughly with hot tap water.

3. Rinse containers with 10 percent nitric acid.

4. Rinse containers thoroughly with tap water.

5. Rinse containers thoroughly with deionized water.

6. Allow to air dry and secure with tightly fitting cap.

When transporting organic-free and deionized water to the field, use only containers cleaned as specified above. Label the container as "organic-free water" or “deionized water” and include the date it was prepared.

NOTE: PFAS-free water may only be stored in HDPE or polypropylene containers. New containers should be QC sampled and shown to be PFAS-free before use.

7.9 SCBA Facemasks

***CAUTION:* Facemasks should be inspected for wear or damage. If, after consultation with the Safety Officer, the facemask cannot be repaired, it should be discarded.**

1. Wash facemask thoroughly inside and out with hot tap water and Liquinox® detergent. Use only soft brushes. Do not use scouring pads of any type.

2. Rinse facemask thoroughly inside and out with tap water.

3. Hang facemask up until completely dry.

4. Place facemask in plastic bag and return to SCBA case.

APRs are completely dismantled prior to cleaning. Then Steps 1 - 3 for SCBA facemasks are used. When completely dry, the APR is reassembled and placed in a plastic bag.

7.10 Garden Hose

1. Brush and wash exterior with Liquinox® detergent and tap water

2. Rinse with tap water.

3. Flush interior with tap water until clear (minimum of one gallon) and drain.

4. Let completely air dry.

5. Coil and place in clean plastic bag.

7. Potable water (white NSF) hoses should be segregated from other hoses.

7.11 Portable Tanks for Tap Water

1. Scrub exterior and interior to the extent possible with Liquinox® detergent and tap water.

2. Rinse with tap water.

3. Let completely air dry.

4. Close and store.

7.12 Vehicles

Field investigators are responsible for keeping field vehicles clean by removing trash and other debris. If warranted, based on an evaluation of the type and degree of contamination present, contaminated trash and equipment will be kept separate from ordinary trash and will be properly disposed on-site or upon return.

Vehicles that become contaminated during the course of the field investigation will be washed (and cleaned on the inside, as appropriate) at the conclusion of each field trip. It will be the responsibility of the field investigators to see that this procedure is followed. This should minimize contamination of equipment or samples due to contamination of vehicles.

8 Preparation of Disposable Sample Containers

No disposable sample container may be reused. All disposable sample containers will be stored in their original packing containers. When packages of uncapped sample containers are opened, they will be placed in new plastic garbage bags and sealed to prevent contamination during storage.

9 References

SESD Operating Procedure for Field Equipment Cleaning and Decontamination, LSASDPROC-205, current version

US EPA. Safety, Health and Environmental Management Program Procedures and Policy Manual. Region 4 LSASD, Athens, GA, current version

US EPA, Technical Brief *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Methods and guidance for sampling and analyzing water and other environmental media*, EPA/600/F 1 -17/022f | Updated June 2019,
https://www.epa.gov/sites/production/files/2019-02/documents/pfas_methods_tech_brief_28feb19_update.pdf

Interstate Technology and Regulatory Council (ITRC) 2018, *Site Characterization Considerations, Sampling Precautions, and Laboratory Analytical Methods for Per- and Polyfluoroalkyl Substances (PFAS).*

Department of Defense (DoD) 2017, *Bottle Selection and other Sampling Considerations When Sampling for Per and Poly-Fluoroalkyl Substances (PFAS).*

Government of Western Australia, Department of Environment Regulation (WA, DER) 2016, *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).*

Revision History

The top row of this table shows the most recent changes to this controlled document. For previous revision history information, archived versions of this document are maintained by the LSASD Document Control Coordinator on the LSASD local area network (LAN).

History	Effective Date
ASBPROC-206-R4, *Field Equipment Cleaning and Decontamination at the FEC*, replaces SESDPROC-206-R3. **Updated** format and realignment from SESD to LSASD **Revision:** Removed "wrapping decontaminated equipment in aluminum foil" in Sections 3, 4, 5 and 6. **Updated** Section 4, *Equipment Used for Sample Collection for Per- and Poly-Fluoroalkyl Substances (PFAS) Analyses.* **Modified** Section 6 by removing Silastic Tubing and adding HDPE.	October 3 , 2019
SESDPROC-206-R3, *Field Equipment Cleaning and Decontamination at the FEC*, replaces LSASDPROC-206-R2. **Cover Page:** The author was changed to Brian Striggow. SESD's reorganization was reflected in the authorization section by making John Deatrick the Chief of the Field Services Branch. The FQM was changed from Bobby Lewis to Hunter Johnson. **Revision History:** Changes were made to reflect the current practice of only including the most recent changes in the revision history. **General:** Corrected any typographical, grammatical and/or editorial errors. **Section 5.6:** Deleted section for obsolete or rarely used mixing rod.	December 18, 2015

Section 6.2: Deleted cleaning of new Teflon® tubing consistent with current practice. **Section 7.3**: Added Monsoon® and Geosub® pump cleaning procedure. **Section 7.4:** Added bladder pump cleaning procedure. Differentiated between use of Luminox and Liquinox detergents throughout procedure consistent with current practice.	
SESDPROC-206-R2, *Field Equipment Cleaning and Decontamination at the FEC*, replaces LSASDPROC-206-R1.	December 20, 2011
SESDPROC-206-R1, *Field Equipment Cleaning and Decontamination at the FEC*, replaces LSASDPROC-206-R0.	November 1, 2007
SESDPROC-206-R0, *Field Equipment Cleaning and Decontamination at the FEC*, Original Issue	February 05, 2007