SVOC (Semi volatile organic compounds) Sampling Guidelines, Rev. 1.0

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Purpose

The purpose of this bench procedure is to present guidelines for collecting water and soil/sediment samples to submit for SVOC analysis. The "semi volatile" contaminant grouping is composed of compounds with broad chemical properties and structural features. Examples of semi volatile compounds include PCBs, Pesticides, and PAHs.

Scope

This document describes general and specific procedures, methods, and considerations to be used and observed when collecting surface water samples for field screening or laboratory analysis (USEPA, 2015).

Responsibility

It is the responsibility of the individual collecting samples to ensure that these guidelines are adhered to so that inadvertent sample contamination or analyte loss does not occur. The field team lead must develop a checklist of sampling equipment and materials prior to the start of the day of the field trip. Assure that proper sample containers and labeling materials are accounted for each trip/day.

Procedural Steps

1.0 Considerations

1.1 Potential sources of SVOC cross-contamination in the typical sampling environment include water used during drilling or decontamination, materials used within the sampling environment, sampling equipment, field clothing and personal protective equipment (PPE), and the environment itself. Wash hands thoroughly before sampling.

1.2 All samples must be clearly labeled by site, number of sample, and status as field blank (FB) or lab blank (LB).

1.3 To ensure sample integrity, it is required that an accurate written record (chain-of-custody) be available to trace the possession and handling of samples from the moment of collection through analysis and final disposition.

1.4 When collecting samples for SVOC analysis, avoid contact with the following items prior to collecting samples:

1.4.1 Any product made from plastic

1.4.2 Any petroleum based product

1.5 Containers that **ARE** acceptable for sample collection include:

- Pre-cleaned certified glass containers (amber bottles are preferred)
- Cleaned per EPA guidelines for semi-volatiles, pesticides, PCBs
- With polypropylene cap with PTFE faced foamed polyethylene liner

1.6 Containers that are **NOT** acceptable for sample collection include:

1.6.1 Plastic containers

2.0 Sampling Water

2.1 Sampling containers must be pre-cleaned glass Boston round bottles with polypropylene screw cap with a PTFE faced foam polyethylene liner (for example, 1L amber bottles, Fisher Scientific, Cat. No. 02-911-833 or equivalent).

2.2 A field blank should be used to ensure that the sampling containers provided and the process do not introduce contaminants.

2.3 If water samples are collected at depth, the bottle needs to be opened and closed at depth.

2.4 Change gloves (powderless nitrile) between sampling locations.

2.5 At least 1000 mL of sample is recommended for analysis to fulfill quality control requirements.

2.6 During sampling and shipping, samples must be protected from breakage and must be maintained at a constant temperature that is neither too hot nor too cold. If the samples must be refrigerated, cool them with sufficient pre-frozen chemical cold packs (blue ice) or wet ice to about 4°C (39°F).

2.7 Water samples can be held at 4°C in the dark for up to 7 days without loss of sample integrity (check with laboratory for specifics regarding hold times and temperatures).

3.0 Sampling Soil/Sediment

3.1 Soil/sediment samples are to be collected in containers known to be free of SVOC compounds.

3.2 Sampling containers must be amber glass wide mouth straight sided jars with polypropylene screw cap with a PTFE faced foam polyethylene liner (for example, 120 or 250 mL amber bottles, Fisher Scientific, Cat. No. FB-02912045 or FB-02911859 or equivalent).

3.3 Avoid using plastic spoons/spatulas for sampling; uncoated metal is acceptable.

3.4 Sampling scoop need to be decontaminated between uses.

3.5 Use a fresh pair of gloves (powderless nitrile) and change them often.

3.6 Fill jars 75% full, for analysis and to fulfill quality control requirements.

3.7 During sampling and shipping, samples must be protected from breakage and must be maintained at a constant temperature that is neither too hot nor too cold. If the samples must be refrigerated, cool them with sufficient pre-frozen chemical cold packs (blue ice) or wet ice to about 4°C (39°F).

3.8 Sediment/soil samples can be held at 4°C in the dark for up to 7 days without loss of sample integrity (check with laboratory for specifics regarding hold times and temperatures).

4.0 Additional safety information

4.1 Each region, and in fact, each site, has unique conditions that require consideration when preparing for their visitation and collection. It is beyond the scope of this document to describe every consideration. It is the responsibility of the field team to acquire the local knowledge required for a safe and successful mission.

4.2

Here is a brief list of some issues to consider in training personnel and planning field activities:

Situational awareness of weather and the environment;
Local knowledge of surf, tides and currents;
Local knowledge of dangerous animals (e.g., bears, alligators, poisonous snakes, etc);
Navigation skills with GPS, nautical charts and land maps;
Appropriate form of electronic communication (cell phone, VHF radio, satellite phone);
Ability to respond to first aid emergencies;
Wear appropriate clothing for thermal and water protection. “Cold Water Kills.”
Review cold water safety prior to entering the field;

Extreme heat can be harmful; take necessary precautions to prevent sunburn and heat exhaustion;
Appropriate safety equipment and knowledge of how to use it;
Appropriate sampling equipment and knowledge to use it (sediment grabs, water quality meter).

5.0 References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Third Edition, Final Updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), and V (2015).

6.0 Disclaimer

This document is only to provide some preliminary guidance prior to collection of any field samples for analysis. It is encouraged to always work with the laboratory that is going to provide the analysis to ensure proper sampling equipment and protocols, proper sampling containers, field storage, shipping, and storage conditions, shipping conditions.

Revision History

Page # Paragraph or Section	Revision Number	Date	Purpose of Revision	Approved By
All	1.0	04-15-2022	Original	Thomas J. McDonald (Texas A&M University) t-mcdonald12332@tamu.edu