



Proper Sampling Protocols for Emerging Contaminates

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3 Things to Consider when Sampling

- 🧪 Correct Containers
- 🧪 Correct Preservation
- 🧪 Correct Sampling



The Importance of Containers/Preservatives



EPA has specific requirements for what containers to use.

Be familiar with the requirements of the testing that you want done.



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The Importance of Containers/Preservatives



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Most Labs have reference material on their websites for containers, sampling instructions, and hold times

Drinking Water Capabilities



Waste Water Capabilities



Search:

Test	Method	Bottle	Perservative	Hold Time	Special requirements
Alkalinity, Phen	SM 2320	250ml Plastic	Non Preserved	14 days	
Alkalinity, Stab	SM 2330	250ml Plastic	Non Preserved	14 days	
Alkalinity, Total	SM 2320 B	250ml Plastic	Non Preserved	14 days	
BOD, 5 Day	SM 5210 B	250ml Plastic	Non Preserved	48 hours	
CBOD, 5 Day	SM 5210 B	250ml Plastic	Non Preserved	48 hours	
Chloride	SM 4500Cl B	250ml Plastic	Non Preserved	28 days	
Chlorine, Free	SM 4500Cl G	250ml Plastic	Non Preserved	ASAP	
Chlorine, Residual	SM 4500Cl G	250ml Plastic	Non Preserved	ASAP	

Dechlorinator vs Preservative

- A dechlorinator will remove any residual chlorine from the sample.
 - Sodium Thiosulfate
 - Ascorbic Acid
 - Sodium Sulfite
 - Ammonium Chloride
- A preservative will maintain the sample as it is at sample collection
 - Acids (Nitric, Hydrochloric, Phosphoric, Sulfuric)

NOTE: Non-preserved samples usually have shorter hold times

3 Things to Consider when Sampling

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- 🧪 Correct Preservation
- 🧪 Correct Sampling

General Sampling Procedures

- ✓ Collect samples in an area free of excessive dust, rain, snow, or other sources of contamination.
- ✓ Select a cold-water faucet for sampling which is free of contaminating devices such as screens, aerations devices, hoses, purification devices or swiveled faucets. Check the faucet to be sure it is clean. If the faucet is in a state of disrepair, select another sampling location.
- ✓ Collect samples from faucets which are high enough to put a bottle underneath, generally the bathtub or kitchen sink, without contacting the mouth of the container with the faucet.

General Sampling Procedures

- ✓ Open the faucet and thoroughly flush. Generally, 5-10 minutes will suffice. Once the lines are flushed, adjust the flow so it does not splash against the walls of the bathtub, sink or other surfaces.
- ✓ Follow the collection instructions provided for the analytes of interest. Remember PPE when handling containers with acid preservatives.

General Sampling Procedures

- ✓ Fill out the chain of custody form with the sample collection information.
- ✓ Deliver or ship samples to the laboratory to ensure that the holding times are met. Holding time starts at the sample collection and ends at the preparation and/or analysis. Be sure to allow time for the laboratory to process the samples.

Specific Sampling Procedures and Considerations

Total Coliform

- Bottles are sterile so care must be taken not to contaminate the bottle or cap.
- Coliforms are common in the environment, and some are not harmful to humans. Contamination of your sample from soil, dust or other outside factors must be minimized to prevent false positive samples.
- Sanitize the tap before taking the sample.



Specific Sampling Procedures and Considerations



VOC/THM/BTEX/Halomethanes

- Care must be taken to prevent headspace in the sample vial.
- Potential contamination from the motors.
- Provide multiple samples.
- Be careful not to touch the cap of the bottle. This could introduce chlorine which will result in a false result for residual chlorine which will have to be rejected by the lab for analysis.
- Trip blanks are a good way to identify sampling contamination.



Specific Sampling Procedures and Considerations

SOC Groups/TTO/PP (Pesticide, Herbicide, Semi-Volatile)

- Different compounds have different bottles/preservation depending on the method of analysis.
- Only glass containers can be used. Contamination of sample can happen with plastic containers.



Specific Sampling Procedures and Considerations

Lead/Copper Rule

- Select a cold-water faucet for sampling which is free from water softeners or point of use filters.
- Do NOT remove any screens or aeration devices.
- Sample tap must sit idle for at least 6 hours.
- Place a 1L bottle under the tap and collect the first water out of the tap.
- Bottles are unpreserved so watch holding times.



Specific Sampling Procedures and Considerations

Low-Level Mercury (Clean Hands/Dirty Hands)

“Clean Hands”

- does not touch “non-clean” materials
- does not touch secondary container bags
- does not touch shipping containers
- handles all “clean” materials
- directly contacts sample source
- opens/closes primary container bags
- directly holds sample container

“Dirty Hands”

- does not disturb sample source
- does not touch primary container bags
- does not touch sample containers
- does not touch “clean equipment”
- handles all “non-clean” materials
- opens/closes shipping containers
- opens/closes secondary container bags
- operates pump/metallic equipment

Specific Sampling Procedures and Considerations

PFAS

Field

-
-
-
-



Field Equipment

containing Gore-Tex®.

made of polyurethane and polyurethane and PVC.



- Do not use materials containing Tyvek® or polytetrafluoroethylene (PTFE) such as Teflon®.
- Do not use fabric softener on clothing to be worn in field.

- Do not use cosmetic products, perfumes, lotions, or other related products the morning of sampling.
- Do not use prohibited items in the field.

Food Considerations

- No food or drink in the field.
- Use bottled water.



Field Equipment



containing... must be... ylene.

waterproof field books can be used.

clipboards, binders, or spiral hard cover notebooks can be used.

and permanent markers not allowed; regular ball point pens are

samples in separate cooler, away from sampling containers that may contain...



- Coolers filled with regular ice only - Do not use chemical (blue) ice packs.

Specific Sampling Procedures and Considerations

Using Composite Samplers

- Make sure equipment is cleaned frequently (sampler jugs)
- Replace tubing
- Sampling sticks are clean
- Use gloves all the time



Important Reminders for CoC

- Containers should be CLEARLY labeled with your lab's ID / sample identifier.
- Sample locations are noted correctly (influent / effluent).
- All pertinent information for reporting potable parameters is provided and correct. For example, if you do not list the correct SMP ID, you will not get credit for that sampling.
- Container and chain of custody should match, for parameters needed.



Thank you for your attention

Questions??

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