

## Maintenance, Sampling and Troubleshooting Guide

This guide contains the information required for the follow-up of the **Ecoflo<sup>®</sup> Coco Filter system** certified under the NSF Standard 40 regarding the annual maintenance as set out in the **Ecoflo<sup>®</sup> Coco Filter warranty agreement** for all models and for the interventions requested by the client through Customer Service. These tasks shall be performed by duly trained personnel, namely the Premier Tech Aqua Customer Service (CS) team, a Service Partner or any authorized agent.

### 1. Maintenance schedule and follow-up

The Ecoflo<sup>®</sup> Coco Filter system shall be serviced annually for the duration of its useful life. The NSF certified Ecoflo<sup>®</sup> Coco Filter shall receive a bi-annual maintenance for the first two years of its installation.

Here are the steps to be followed by the service partner:

1. Locate the Ecoflo<sup>®</sup> Coco Filter.
2. Inspect the general condition of the area around the Ecoflo<sup>®</sup> Coco Filter system.
3. Open the lid and remove the insulating board.
4. Conduct an initial general visual inspection of the system.
5. Remove the distribution system (tipping bucket and distribution plates).
6. Clean the openings of the tipping bucket's failure sensing device.
7. Check the condition of the filtering media surface.
8. Check the condition of the gravel or drainage layer by unscrewing the white cap of the central support or through the access funnel (depending on the model).
9. Check the general condition of the shell.
10. Verify the effluent quality (color, odor, turbidity) if required.
11. Rake the filtering media to a depth of about 6" and then level its surface (on an annual basis only).
12. Put the distribution system back in place and make sure it is working properly.
13. Note all useful information on the "Proof of Visit" form.
14. Replace the insulating board on the access and install the Ecoflo<sup>®</sup> seals securing the board to the shell.
15. Close the lid.
16. Open the septic tank lids and verify its condition.
17. Verify the general condition of the effluent filter and close the septic tank lids.
18. Provide the client with his copy of the "Proof of Visit" form.



**Note: During the maintenance work, the technician must also pay particular attention to anything that may impact the system in the short or long term (i.e. drainage, landscaping, etc.).**

Table 1 indicates the maintenance schedule of the Ecoflo<sup>®</sup> Coco Filter components.

**Table 1: Maintenance schedule**

Item	To do	Frequency
Filtering media	Verify condition of the bed surface	Each visit
	Raking	Once a year
Water distribution system (including the failure sensing device)	Verify functionality	Each visit
Pumping station and flow divider (when applicable)	Verify functionality	Each visit
Shell, lid, insulating board, tipping bucket, distribution plates and its support, central support	Verify structural integrity	Each visit
Drainage layer (gravel)	Verify condition	Each visit
System effluent	Visual verification of effluent quality	Each visit
Septic system area	Verify general condition	Each visit

## 2. System effluent verification

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In accordance with NSF standard 40 initial service policies, a visual assessment for color, turbidity and scum overflow, and olfactory assessment for odor of the system effluent shall be done for the first 2 years of maintenance. The following indicates how to perform that evaluation:

### 1- Grab a sample with a clear 125 ml bottle or equivalent

In the case of an open bottom fibreglass Ecoflo<sup>®</sup> Coco Filter model, the effluent must be sampled via the sampler located under the central support. Start by wiping off the wastewater located around the central support's threaded cap to avoid sampling contamination. Then, clean the "under lip" of the sampling bucket if necessary and proceed to sampling directly with the bottle.

For the watertight bottom fibreglass models, the effluent must be sampled at the system discharge (usually in a pumping station).

The effluent from polyethylene and concrete models must be sampled via the access funnel located in the secondary access. Clean the "under lip" of the sampling bucket if necessary and proceed to sampling directly with the bottle at the bottom and center of the access funnel (between the float tree and the pump).

### 2- Verify the visual aspect of the effluent

#### a. Color verification:

Look at the effluent contained in a clear container. The expected sample color is clear to yellowish. If the color of the effluent seems to indicate a problem, take a picture of the sample and send it to Premier Tech Aqua for an expertise.

#### b. Turbidity verification:

Look at the effluent contained in a clear container. If the turbidity of the effluent appears to be very milky, take a picture of the sample over a dark background and send it to Premier Tech Aqua for an expertise.

### 3- Scum overflow

There is no scum generation with this type of wastewater treatment process. Water simply trickles through the filtering media. Thus scum overflow is not an issue and doesn't need to be assessed.

### 4- Verify the olfactory aspect of the effluent

Smell the sample delicately. It should not have a strong odor of rotten cabbage, rotten eggs or ammonia. It's normal to have an earthy, musty or moldy odor. Note the information on the "Proof of Visit" form.

## 3. Repair and replacing instructions

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If any of the system's removable parts (effluent filter cartridge, distribution plates or tipping bucket) are broken, they should be replaced onsite. If the septic tank or the Ecoflo<sup>®</sup> Coco Filter shell or lid needs to be repaired, contact the manufacturer or Premier Tech Aqua.

## 4. Sampling

A sampling protocol must be followed to evaluate the effluent of the Ecoflo® Coco Filter. The sampling method may be different depending on the type of parameter to be analyzed (grab sample or 24-hour sample).

**Note: The technician shall receive proper training before any sampling can be performed. The following procedure thus serves as a reminder to be referred to only after the training as been completed.**

The expected treatment efficiency of the effluent produced by the Ecoflo® Coco Filter system as established through analytical methods described in NSF/ANSI Standard 40 is:

**Table 2: Treatment efficiency**

Parameter	Typical Effluent Values		ANSI/NSF Standard 40 Class I Requirement Criteria	
	Septic tank*	Ecoflo® Coco Filter**	7-day average effluent quality	30-day average effluent quality
Carbonaceous Biochemical Oxygen Demand (CBOD <sub>5</sub> )	≤ 250 mg/L	≤ 10 mg/L	≤ 40 mg/L	≤ 25 mg/L
Total Suspended Solids (TSS)	≤ 75 mg/L	≤ 10 mg/L	≤ 45 mg/L	≤ 30 mg/L
Fecal Coliforms (CFU/100 ml)	≤ 2 000 000 CFU/100 ml	≤ 25 000 CFU/100 ml	NA	NA
*Typical values according to sampling campaigns in Canada and United States since 1995. (80% of septic tank effluent samplings). **Concentration mean based on sampling trials (arithmetic for solids, geometric for coliforms).				

For detailed sampling procedures, please refer to appendix A of this document.

## 5. Transfer of information

On a regular basis, service providers shall electronically transfer all the information gathered into the maintenance database. All information regarding special cases shall be entered in a file to be verified. The CS coordinator will be able to update a customer's file by managing this database. All photos of the filtering media and the crushed stone are transferred automatically with the maintenance files.

## 6. Troubleshooting Chart

Source/Possible Causes	Possible Actions or Solutions
<b>A- Inaccessible Ecoflo® Coco Filter</b>	
1. The Ecoflo® Coco Filter lid is buried.	1. Dig up the Ecoflo® Coco Filter lid and provide notification using the note: "Fill Level in the Area of the Ecoflo® Coco Filter and Lid Accessibility".
2. A heavy object is covering the Ecoflo® Coco Filter lid.	2. Ask the client to keep the access to the Ecoflo® Coco Filter free at all times using the "Excess Loads" note.
<b>B- Excess load on or near the Ecoflo® Coco Filter</b>	
1. Excess load caused by a vehicle or heavy object.	1. Inform the client of the instructions to follow.

Source/Possible Causes	Possible Actions or Solutions
<b>C- Resurgence near the Ecoflo® Coco Filter (Open Bottom series only)</b>	
1. The soil is waterlogged. 2. Excessive water consumption. 3. Insufficient fill.	1.1 <u>Sloped site</u> : drain the soil upstream from the seepage area. 1.2 <u>Flat site</u> : Raise the Ecoflo® Coco Filter. 2.1 Check for a problem with a plumbing component (e.g. faulty toilet). 2.2 Review the system installation. 2.3 Look for a parasite seepage source and correct it. 3. Add fill.
<b>D- Odors</b>	
1. Inadequate ventilation. 2. The septic system is installed too close to an inhabited area. 3. Water accumulation near the septic installation caused by resurgence.	1. Examine the different components and make the necessary corrections (e.g.: a line is disconnected, absence of a vent in the residence, the septic tank lids are not airtight, etc.). 2. Look at the possibility of increasing the ventilation of the system or installing a carbon filter. 3. See <i>C: Resurgence near the Ecoflo® Coco Filter</i> .
<b>E- Septic odors located in or spreading through the building</b>	
1. Leak of a plumbing component. 1.1 Hole on a plumbing line. 1.2 Wax seal not airtight at the foot of a toilet. 1.3 Dry out of a plumbing gooseneck. 2. House without a vent.	1. Block off the hole or have the defective plumbing component repaired. 2. Installation of a vent.
<b>F- Wastewater does not appear to reach the Ecoflo® Coco Filter</b>	
1. A line is disconnected or broken. 2. A component of the pumping station is defective or improperly adjusted. 3. No water consumption for some time (secondary residence).	1. Reconnect or repair the line. 2. Identify the defective component and repair or readjust it. 3. No action to be taken.
<b>G- Backflow</b>	
1. Freezing 1.1 Insufficient line insulation. 1.2 Snow removal above the lines. 1.3 Installation in winter conditions. 1.4 Insufficient use of the septic system.	1. Thaw by: 1.1 Providing more insulation on the line. 1.2 Avoiding snow removal above the lines. 1.3 Taking the necessary precautions when installing during the cold season. 1.4 Avoiding prolonged periods without supply.
<b>H- Excessive accumulation of biomass on the filtering media surface</b>	
1. Use of a food waste disposal unit. 2. Poor maintenance of the main components of the septic system. 3. Poor application (non-domestic wastewater).	1. Reduce use of the food waste disposal unit and/or add an effluent filter to the septic installation. 2. Carry out maintenance on the septic installation components (drain the septic tank). 3. Reassess the design criteria based on the water to be treated.

Source/Possible Causes	Possible Actions or Solutions
<b>I- Water accumulation on the filtering media surface (over 60% of the surface)</b>	
1. Excess water to the Ecoflo <sup>®</sup> Coco Filter (excess water load). 2. Parasite water seepage from the septic tank, piping or pumping station. 3. Recent arrival of water level with the Ecoflo <sup>®</sup> Coco Filter. 4. Excess colonization on the filtering media.	1.1 Check for a problem around a plumbing component (e.g. faulty toilet). 1.2 Ask the client to reduce water consumption. 1.3 Review the installation of the system. 2. Identify the source of the infiltration and correct it. 3. No action to be taken. 4.1 Till under the filtering media surface or replace it if the tilling is not sufficient. 4.2 Reduce the organic load of the wastewater.
<b>J- Water in the drainage area (measured through the central support opening) (Fibreglass models)</b>	
1. Excess water to the Ecoflo <sup>®</sup> Coco Filter (excess water load). 2. High level of the water table or parasite water from the runoff.	1.1 Check for a problem around a plumbing component (e.g. faulty toilet). 1.2 Ask the client to reduce water consumption. 1.3 Review the installation of the system. 2.1 <u>Sloped site</u> : drain the soil upstream from the seepage area. 2.2 <u>Flat site</u> : Raise the height of the Ecoflo <sup>®</sup> Coco Filter. 2.3 The water level does not affect performance; follow-up will be required.
<b>K- Water in the access funnel (measured through the secondary access ) (polyethylene and concrete series)</b>	
1. High water level (over the alarm float ) in the Ecoflo <sup>®</sup> Coco Filter access funnel (integrated pump series) 2. High water level in the Ecoflo <sup>®</sup> Coco Filter access funnel (gravity series)	1.1 Review the installation of the pump and the float tree. 1.2 Verify that the alarm float has worked properly. If not, take corrective action on the float. 2.1 <u>Sloped site</u> : drain the soil upstream from the seeped area. 2.2 <u>Flat site</u> : Raise the height of the Ecoflo <sup>®</sup> Coco Filter. 2.3 Ask the client to reduce water consumption. 2.4 Check for a problem around plumbing components (e.g. faulty toilet).
<b>L- Broken fibreglass shell</b>	
1.1 Too much backfill material on the shell. 1.2 Landscaping. 1.3 Retaining wall. 1.4 Heavy objects placed on the shell. 1.5 Vehicles driven on the shell.	1. Repairable: <ul style="list-style-type: none"> <li>- Excavate around the damaged area.</li> <li>- Have the shell take its original shape.</li> <li>- Repair the damaged area with fiberglass.</li> <li>- Respect the curing period.</li> <li>- Backfill adequately.</li> </ul> 2. Non repairable: <ul style="list-style-type: none"> <li>- Contact PTA to order a new shell.</li> </ul>

## APPENDIX A: Detailed sampling procedure

### 1. Fibreglass open bottom Ecoflo® Coco Filter series

#### 1.1 24-hour composite sampling procedure

##### A) Material

- Cleaned Ecoflo® Coco Filter sampling flask;
- Cleaned Ecoflo® Coco Filter sampling flask holding pole;
- Cleaned 20L Nalgene Tank;
- Cooler;
- Frozen ice-packs or ice cubes;
- Sampling-adapted central support plug and the special tool to screw it.
- Cleaned Ecoflo® Automatic Effluent Sampler;
- Ecoflo® Coco Filter influent deviation device;
- Laboratory sampling bottles (ex.: TSS, BOD<sub>5</sub>, etc.);
- Ecoflo® Coco Filter lid especially adapted for sampling;
- Flashlight;

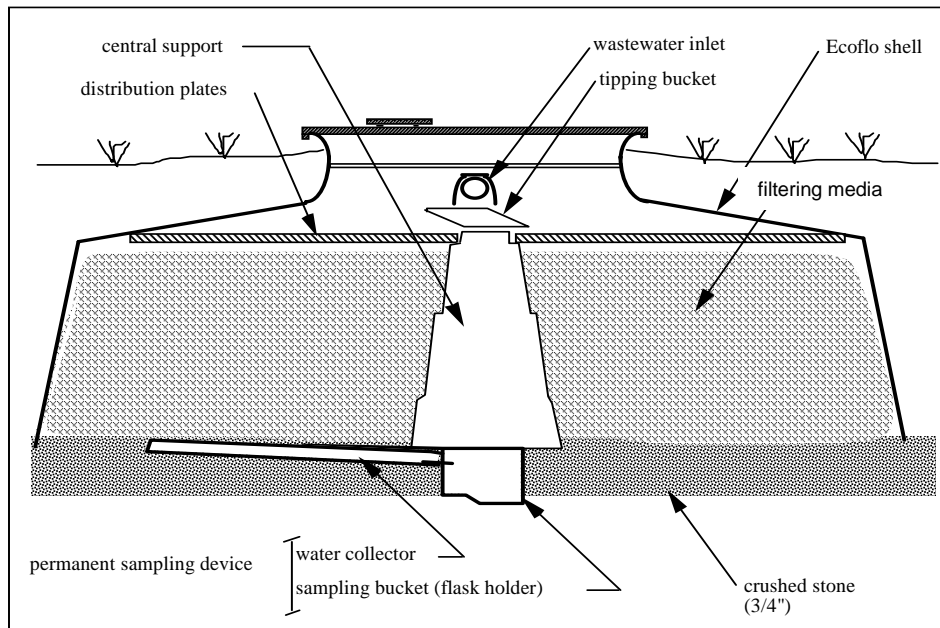


Figure 1: Permanent sampling device installed underneath the Ecoflo® Coco Filter filtering media

##### B) Method

###### Day one

1. Complete a new "Sampling follow-up report".
2. Verify that all sampling material is clean to prevent cross contamination.
3. Remove the Ecoflo® Coco Filter lid and the insulating board and make sure the main components are in proper conditions.
4. Install the influent deviation device.
5. Remove the tipping bucket.
6. Wipe off the wastewater located around the central support treaded cap to avoid sampling contamination.
7. Access to the permanent sampling device by unscrewing the plug located on the top of the central support (figure 1).
8. Clean the "under lip" of the sampling bucket (only if necessary).
9. Place the sampling flask in the appropriate position using the holding pole (figures 2, 3 and 4).

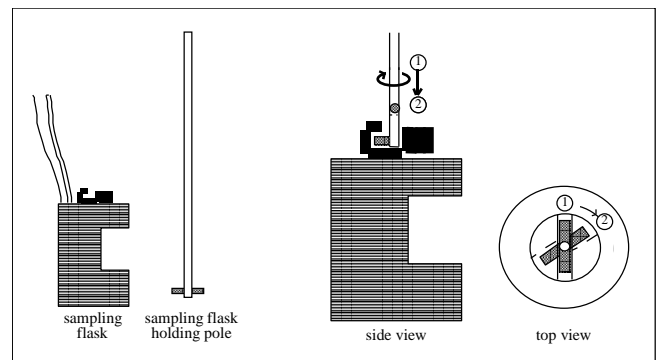


Figure 2: Sampling flask

10. Place the wire and tube from the sampling flask in a way that makes sure they will not interfere with the proper functioning of the tipping bucket.
11. Screw the adapted plug to the central support.
12. Replace the tipping bucket. Remove the influent deviation device. Make sure the system is functioning properly.
13. Set the Ecoflo<sup>®</sup> Coco Filter Automatic Effluent Sampler upside down on the access lip normally holding the insulating board (figure 5).
14. Connect the tube and wire from the sampling flask to the Ecoflo<sup>®</sup> Coco Filter Sampler.
15. Place a fully charged battery in the battery support beside the Sampler casing and connect it.
16. Install the tipping bucket cycle counting switch ("clicking" arm).
17. Check the sampler by placing the switch to "Manual". Normally, you should hear the pump start. When it does, turn the switch back to the middle position (OFF).
18. Place the cooler in the upright position beside the Ecoflo<sup>®</sup> Coco Filter Automatic Effluent Sampler in the Biofilter access (figure 5).
19. Place the previously cleaned Nalgene tank inside the cooler.
20. Insert the tube coming from the Ecoflo<sup>®</sup> Coco Filter Automatic Effluent Sampler in the cooler through the hole made for this purpose and connect it to the Nalgene tank plug.
21. Turn the sampler switch to "Auto".
22. Place ice or ice packs around the Nalgene tank inside the cooler. Close the cooler and seal it with duct tape to prevent any accidental opening of the cooler.
23. Fix the sampling fibreglass lid on the Ecoflo<sup>®</sup> Coco Filter access and place the plastic lid and insulating board in the truck during the sampling period.
24. Write down all the required information on a "Sampling follow-up report" and note any relevant observations.



Figure 3: Sampling flask photo

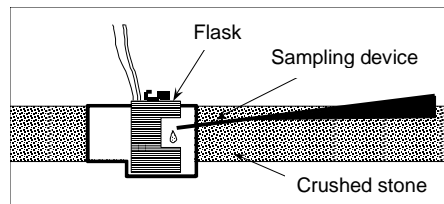


Figure 4: Sampling flask installed for sampling



Figure 5: Ecoflo<sup>®</sup> Coco Filter Effluent Sampler installed

### Day two

1. Open the cooler and check the water level in the tank.
2. If the effluent volume in the Nalgene tank is sufficient to fill all the analysis bottles needed: disconnect the tube and close the cooler. If not enough water is present in the tank: contact the project manager to discuss about the best decision to be taken. If you continue with the sampling, you must turn the switch OFF and replace it on AUTO (reset for 24h).
3. If required, use the pump of the Ecoflo<sup>®</sup> Coco Filter Automatic Effluent Sampler's to take a grab effluent sample for the coliforms. Take care to avoid sample contamination.
4. Continue to write down all the required information on the "Sampling follow-up report" (ex.: end count of counting switch, Nalgene tank volume, etc.).
5. Disconnect and remove the battery.
6. Disconnect the wire and the tube coming from the sampling flask. Remove the sampler.
7. Remove the tipping bucket.
8. Install the influent deviation device.
9. Pull the sampling flask out of the Ecoflo<sup>®</sup> Coco Filter by using the holding pole.
10. Re-install the central support treaded cap and the tipping bucket and remove the influent deviation device.
11. If required, take a grab sample of the Ecoflo<sup>®</sup> Coco Filter influent.
12. Verify that the main components operate properly.
13. Replace the insulating board and the lid.
14. Shake the 20 L Nalgene tank vigorously. Fill an analysis bottle. Close the bottle and the Nalgene tank. Shake both bottles and repeat for each analysis bottles. Start filling the TSS and BOD<sub>5</sub> bottles and finish with the ones

containing a preservative solution (ex.: bottle of  $\text{NH}_4^+$  or NTK). Place all samples in the cooler. **Note: Never place fingers or anything else inside the bottles or the lids. Never mix the lids.**

15. Complete the lab analysis form.
16. Deliver or send all samples to the laboratory as quickly as possible and always within the time limit indicated by the lab procedure.

## 1.2 Grab sampling procedure

### A) Material

- Cleaned sampling flask;
- Ecoflo<sup>®</sup> Coco Filter sampling flask holding pole;
- Laboratory sample bottles for analysis (ex: TSS, BOD<sub>5</sub>, TKN, fecal coliforms, etc.);
- Cooler;
- Liquid waste container;
- Combo-container cleaned by a laboratory or equivalent;
- Timer;
- Cleaned Ecoflo<sup>®</sup> Coco Filter Sampler G-2;
- Influent deviation device;
- Tap water (to clean the sampler after the sampling event);
- Frozen ice-packs or ice cubes;
- Graduated container for flow measurement;
- Tool to screw and unscrew the central support treaded cap;
- Flashlight.

### B) Method

1. Complete a new "Sampling follow-up report".
2. Note the site's general condition and any abnormalities.
3. Remove the Ecoflo<sup>®</sup> Coco Filter access lid and insulating board. Verify that all water distribution devices function properly.
4. Install the influent deviation device on the same side of the central support as the Ecoflo<sup>®</sup> Coco Filter permanent sampling device.
5. Remove the tipping bucket and open the treaded cap of the central support access for sampling (figure 1).
6. Measure the effluent flow output with the flow measurement container. Write down the result on the report.
7. If the effluent flow is under 60 ml/min and the discharge from the septic tank in the Ecoflo<sup>®</sup> Coco Filter is zero or negligible, it is possible to add water to the system via the septic tank. In this manner, sampling will take a reasonable time. You can also decide to reschedule the sampling to another day. To artificially feed the septic tank, flush the toilet a few times (for 13L (3.4 gal)/toilet flush: flush the toilet 6 times with a waiting period of 4 minutes between each flush).
8. If the flow output is above 286 ml/min, the sampling must be cancelled and rescheduled to another day. Making this decision is essential as sampling in these conditions will not be representative of the mean performance of the system.
9. Make sure that the deviation device splits the influent over the distribution plates adequately.
10. Set the sampling flask in the appropriate position using the holding pole (figures 2, 3 and 4).
11. Connect the tube coming from the sampling flask to the Ecoflo<sup>®</sup> Coco Filter Sampler G-2.
12. Connect the battery. Put the sampler switch ON.
13. Rinse the tubing of the sampling system (tubing of sampling flask and sampler). The volumes of the rinsing water pumped must be selected based on the diameter and length of the tubing:

Volume of RINSING WATER = total tubing length (in) x 0.028 in<sup>2</sup> x 16.4 ml/in<sup>3</sup>

- Ex.:
- sampling flask tubing length = 150 in.
  - sampler tubing length = 47 in.
  - tubing total length = (150+47) = 197 in.

Conclusion: 197 in. x 0.028 in<sup>2</sup> x 16.4 = 90.4 ml approx. 90 ml → liquid volume to discard before sampling

14. Hold the tube coming from the Ecoflo<sup>®</sup> Coco Filter Sampler G-2 on top of the combo-container. Fill it until you have reached a sufficient volume for the analysis to be fully realized.
15. Turn OFF the Ecoflo<sup>®</sup> Coco Filter Sampler G-2 switch and put the end of tube on a cleaned and safe surface (to avoid contamination). **Reminder: Make sure to never touch the inside part of any container, bottle, etc. with the sampler tube to avoid contamination.**
16. Close the Combo-container. Place it in the cooler.
17. Stop the water source, if it is still opened (if applicable). See #7.
18. To fill the coliforms bottle: open the sterile bottle and turn ON the Ecoflo<sup>®</sup> Coco Filter Sampler G-2. Place the sampling tube end in the right position on top of the bottle. When you reach the correct sample level in the



bottle, turn the switch OFF. Close the coliform bottle and shake it. Store immediately in the cooler. **Note: Never touch the inside part of the coliform bottle with the sampler tube to avoid contamination.**

19. Open one analysis bottle. Shake the Combo-container vigorously. Fill the bottle as required. Close the bottle and the container. Shake both bottle and container and repeat for all analysis bottles. Start filling the TSS and BOD<sub>5</sub> bottles and finish with bottles having a chemical preservative solution (ex.: bottle for Nitrate, TKN, etc.). Put all the samples in the cooler. **Note: Never place fingers or anything else inside the bottles or the lids. Never mix lids.**
20. Disconnect the battery.
21. Disconnect the tube coming from the sampling flask.
22. Pull out the sampling flask.
23. Replace carefully the treaded cap on the central support access for sampling.
24. Remove the influent deviation device.
25. Take a grab influent sample of the Ecoflo<sup>®</sup> Coco Filter influent if required. **Note: Always sample INFLUENT AFTER EFFLUENT SAMPLING to avoid cross-contamination.**
26. Re-install the central support treaded cap and tipping bucket. Make sure all the influent distribution components function properly.
27. Replace the insulating board and Ecoflo<sup>®</sup> Coco Filter lid.
28. Write down all the required information on the sampling report and any relevant observations. Complete the lab analysis form.
29. Deliver or send samples to the laboratory as quickly as possible and always within the time limit indicated by the lab procedure.

## **2. Fibreglass watertight bottom Ecoflo<sup>®</sup> Coco Filter series**

### **2.1 24-hour composite sampling procedure**

#### **A) Material**

Sampling is performed via a pumping station located downstream of the Ecoflo<sup>®</sup> Coco Filter. An "ISCO" sampler (or equivalent) must be used for this sampling.

#### **B) Method**

As per sampler procedure.

### **2.2 Grab sampling procedure**

**Note: This procedure is applicable for systems equipped with a pumping station located downstream of the Ecoflo<sup>®</sup> Coco Filter.**

#### **A) Material**

- Cleaned Ecoflo<sup>®</sup> Coco Filter Sampler G-2;
- Special weighed tubing with quick connect;
- Liquid waste container;
- Combo-container cleaned by a laboratory or equivalent;
- Flashlight.
- Frozen ice-packs or ice cubes;
- Tap water (to clean the sampler when sampling is completed);
- Cooler;
- Laboratory sampling bottles for analysis;

#### **B) Method**

1. Complete a "Sampling follow-up report".
2. Verify the site's general conditions and any abnormalities in the pumping station and in the Ecoflo<sup>®</sup> Coco Filter.
3. Before opening the pumping station access lid, clean the area around it to prevent any objects (soil, gravel, tree leaves, etc.) from falling into it.
4. Connect the special tubing to the Ecoflo<sup>®</sup> Coco Filter Sampler G-2.
5. Lower the weighed tubing down to 5 inches below the water level in the pumping station (try not to touch anything to prevent solids from falling in the tank). **Note: The tubing extremity should be submerged about 5 to 6 inches under water level. Usually, the top of the plastic coated lead rolled on the tubing makes it easy to see the mark.**

6. Put the Ecoflo® Sampler G-2 ON, only after the extremity of the tubing is submerged. Make sure to maintain the tubing submerged at the right depth during all the sampling.
7. Pump 1 to 2 L in the liquid waste container. **Note: Discard the rinsing liquid when you return to the laboratory or into the pumping station, but only at the end of the sampling event.**
8. Turn OFF the Ecoflo® Coco Filter Sampler G-2 switch.
9. Hold the tube coming from the Ecoflo® Coco Filter Sampler G-2 on top of the combo-container. Put the Ecoflo® Coco Filter Sampler G-2 ON. Fill the combo-container until you have enough volume to perform the planned analysis.
10. Turn OFF the Ecoflo® Coco Filter Sampler G-2 switch and place the end of the sampler tube on a clean and safe surface (to avoid contamination). **Note: Never touch the inside of the bottles with the tube to avoid contamination.**
11. Close the combo-container. Place it in the cooler.
12. If you have a bottle for coliforms: Open the sterile bottle. Put the end of the tube in the right position on top of the bottle and turn ON the switch.
13. Stop the Ecoflo® Coco Filter Sampler G-2 (do not raise the tubing over the pumping station water level). Close the coliform bottle and shake it. Place the bottle in the cooler containing frozen ice-packs or ice.
14. Shake the Combo-container vigorously. Fill an analysis bottle. Close the bottle and the container. Shake both bottle and Combo-container, and repeat for all the analysis bottles. Fill the TSS and BOD<sub>5</sub> bottles and finish with the bottles with a preservative solution (ex.: bottle of TKN, etc.). Place all the samples in the cooler.
15. Remove the tubing from the water. Pump out the liquid remaining in the tubing into the pumping station.
16. Write down all the required information on the "Sampling follow-up report" and note any relevant observations. Complete the lab analysis form.
17. Clean the sampler immediately or as soon as you arrive at the laboratory.
18. Replace lid(s) and make sure the system functions properly.
19. Deliver or send samples to the laboratory as quickly as possible and within the time limit indicated by the lab procedure.

#### Notes:

- **Before and during the sampling event: avoid creating any turbulence in the pumping station water; avoid dropping floating solids in the samples; avoid mixing the decanted or any attached solids with the water in the pumping station.**
- **Always use aseptic techniques when handling coliform samplings.**

### 3. Concrete and polyethylene Ecoflo® Coco Filter series

#### 3.1 24-hour composite sampling procedure

##### A) Material

- ISCO sampler or equivalent;
- Special weighed tubing type B (contact Premier Tech Aqua if required);
- Cleaned 10 L flask;
- Frozen ice-packs or ice cubes;
- Tap water (to clean the sampler after the sampling is complete);
- Laboratory sampling bottles for analysis (TSS, CBOD<sub>5</sub>, NH<sub>4</sub><sup>+</sup>, coliforms, etc.);
- Liquid waste container.

##### B) Method

Follow the sampling procedure supplied with the "ISCO" sampler and follow these steps:

1. Start by completing the form "Ecoflo® Coco Filter sampling follow-up".
2. Before you open the secondary access, clean its surroundings to prevent objects (dirt, stones, leaves, etc.) from falling into the water during sampling. After opening, remove the insulating board located inside.
3. Verify the system installation condition and operation.
4. Lower the ISCO Type B weighed tubing to the bottom of the pumping vault. Make sure the tubing rests against the concrete floor. The type B weighed tubing is designed to collect water between 1 to 2 inches in the bottom of model H1 and between 4 to 7 inches for models H2/H3. When lowering the tubing, make sure not to touch anything else to prevent particles from getting into the water.
5. The sampler tubing must be in the middle of the vault, between the pump and the float tree.
6. Stabilize the sampler tubing to prevent the pump's vibrations from moving the tubing.

7. To annul the first draining of the tubing before sample collection, one automatic sampler calibration parameter must be modified. The ISCO sampler programming is set to collect a dose in three phases. First, it empties the tubing. Second, it collects the amount of water required and finally it empties it again. Thus, the first draining of the tubing must be cancelled to avoid particles resuspension. Refer to the ISCO procedure to modify this parameter.
8. Complete the form "Ecoflo® Coco Filter sampling follow-up".

### 3.2 Grab sampling procedure

#### A) Material

- Cleaned Ecoflo® Coco Filter Sampler G-2;
- Bottles for analysis (TSS, CBOD<sub>5</sub>, NH<sub>4</sub><sup>+</sup>, coliforms, etc.);
- Cooler;
- Frozen ice-packs or ice cubes;
- Tap water (to clean the sampler after sampling);
- Liquid waste container.

#### B) Method

1. This method is very similar to the one used for fibreglass watertight bottom Coco Filter models equipped with a pumping station downstream.
2. Before opening the secondary access, clean its surroundings to prevent any objects (dirt, stones, leaves, etc.) from falling into the water during sampling. After opening, remove the insulating board located inside.
3. Verify the system installation condition and operation.
4. Connect the weighed tubing to the Ecoflo® Coco Filter G-2 sampler.
5. Lower the tubing and position it between ½" to ¾" under the surface of the water. While lowering the tubing, make sure not to touch anything else to prevent particles from getting in the water. This weighed tubing is equipped with a visual marker indicating the appropriate depth for sampling.
6. After the tubing extremity has been submerged, start the sampler. Make sure that the tubing remains submerged at the same depth during the whole sampling.
7. Pump 1 to 2 liters of water in the liquid waste container. **Note: Do not empty the liquid waste container on site**
8. Stop the sampler.
9. Place the sampler tubing on top of each bottle and fill them individually.
10. Then, proceed as per the sampling procedure already described.
11. Complete the form "Ecoflo® Coco Filter sampling follow-up".

**If you have any questions or comments, please do not hesitate to contact Premier Tech Aqua at 1 800 632-6356**



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