

Waterloo Biofilter® Maintenance Procedures

Six Month Inspection:

A. Disposal Bed

1. Walk around the bed and look for darker green grass or wet patches that can indicate surface breakout of effluent. If ponding or breakout is evident:
 - a. Check whether there is an uneven distribution box, uneven or sloped pressure trenches, or too much slope in Area Bed distribution pipes
 - b. See if the ponding effluent is clean or septic
 - c. Use Troubleshooting Solution A.1. if clean or A.2. if septic.
2. Check the disposal bed to ensure it is free draining. Open any inspection ports and look for ponding water. If ponding is evident:
 - a. Check whether there is an uneven distribution box, uneven or sloped pressure trenches, or too much slope in Area Bed distribution pipes
 - b. See if the ponding effluent is clean or septic
 - c. Use Troubleshooting Solution A.1. if clean or A.2. if septic.
3. Check that there is adequate protection against surface water infiltration into the bed area. Has the property been re-graded or modified since the last inspection? If re-grading changed the surface water characteristics of the property swales should be added to redirect surface water. [Troubleshooting Solution A.1.]
4. Check that the disposal bed is grassed and no large trees are going to interfere with distribution pipes. [Troubleshooting Solution A.3.]

B. Waterloo Biofilter® Treatment Unit

1. Open the lid to the Biofilter unit and make sure access is secure and safe.
2. Ensure the lid allows sufficient fresh air into the Biofilter for proper treatment. [Troubleshooting Solutions B.1.]
3. Look at the foam cubes to see the discoloration:
 - a. Grey or dark grey – operation is normal
 - b. Black – operation is acceptable but unusual
 - c. Brown – system may be unhealthy if there is a large amount of build up on the cubes [Troubleshooting Solution B.2.]; check for excess brown sludge on the medium and in the medium by removing some cubes & squeezing
4. The discoloration should be similar over the entire surface of the medium. If not, the spray nozzles are not giving a uniform distribution pattern. Adjust the spray manifold so that the nozzles are centered over the baskets and turn on the septic pump. If the distribution doesn't cover the entire basket, the nozzles are plugged or the wrong nozzles may have been installed. Use Troubleshooting Solution B.3.
5. Check the slime build-up on the foam cubes:
 - a. Normal amount of grey slime – normal operation
 - b. Thick grey slime – wastewater may be stronger than normal; check homeowner food habits and septic tank health [Troubleshooting Solution B.2.]
 - c. Thick brown slime – septic tank may be unhealthy [Troubleshooting Solution B.2.]Any time you cannot see the pores of the foam because of a build up of slime, there is probably a problem [Troubleshooting Solution B.2.], you will also be able to tell if there is a

problem is the Biofilter smells putrid and rotting. A good smell would be a bit musty, like an old damp basement.

6. Carefully take a sample of the treated effluent ensuring that no sloughed biomass is included in the sample jar. Visually inspect the sample:
 - a. Clear, colourless, odourless – normal operation
 - b. Clear, yellowish, slight ammonia smell – normal operation
 - c. Clear, yellow, strong ammonia smell – normal operation but nitrification has not started yet
 - d. Clear with white specks or grey flakes, odourless or slight ammonia – normal but too aerobic: decrease fan speed on PE tank Biofilter
 - e. Clear with large grey flakes, odourless or slight ammonia – contamination from biomat from side of tank or submerged medium: take another sample and repeat
 - f. Cloudy grey, odourless or slight ammonia – may be clay / silt contamination into the Biofilter unit due to surface water runoff [Troubleshooting Solution A.1.]
 - g. Cloudy grey or black, septic odour – nozzles may be spraying over the edge of the basket contaminating the effluent [Troubleshooting Solution B.4.] or the septic tank may be dead [Troubleshooting Solution B.2.]
7. Inspect the spray nozzles to ensure they are not damaged or clogged. If the spray pattern is sluggish or non-uniform, they should be cleaned. Remove the nozzle by the clip, remove any debris, flush the line for 10 seconds, and replace. If a nozzle is broken, contact the manufacturer [Troubleshooting Solution F.2.]
8. Inspect the Biofilter® baskets for stability; they should be vertical and not slumping [Troubleshooting Solution F.1.]

For pumped disposal models:

9. Check that the float tree is vertical and the floats are able to move freely. Rotate and clamp appropriately if required. If any cords have fallen tie them up at the top of the tank.
10. The float tether length should be 2" – 2-1/2". Remove float tree and readjust tether length if necessary.
11. Test the high water alarm by raising the alarm float switch. Check that both an alarm light and audible alarm are triggered [Troubleshooting Solution E.1.].
12. Switch pump to 'hand'. Ensure the pump operates properly and does not move around when it starts. If pump is erratic or not working, use Troubleshooting Solution C.3. Return pump switch to 'auto'.
13. Test the pump control float by checking that the pump turns on when the float is raised and off when the float is lowered [Troubleshooting Solution C.4.].

If applicable:

14. Check that the optional redundant off float turns off the pump when lowered [Troubleshooting Solution C.4.].
15. Check that the optional timer override float turns the pump on when raised. [Troubleshooting Solution C.4.].

C. Pump Tank

1. Open the lid to the pump tank and make sure access is airtight, secure and safe.
2. Make sure there is no infiltration of groundwater between any seams in the tank wall.

3. Check that the float tree is vertical and the floats are able to move freely. Rotate and clamp appropriately if required. If any cords have fallen tie them up at the top of the tank.
4. The float tether length should be 2" – 2-1/2". Remove float tree and re-adjust tether length if necessary.
5. Test the high water alarm by raising the alarm float switch. Check that both an alarm light and audible alarm are triggered [Troubleshooting Solution E.1.].
6. Switch pump to 'hand'. Ensure the pump operates properly and does not move around when it starts. If pump is erratic or not working, use Troubleshooting Solution C.3. Return pump switch to 'auto'.
7. Test the pump control float by checking that the pump turns on when the float is raised and off when the float is lowered [Troubleshooting Solution C.4.].
If applicable:
8. Check that the optional redundant off float turns off the pump when lowered [Troubleshooting Solution C.4.].
9. Check that the optional timer override float turns the pump on when raised. [Troubleshooting Solution C.4.].

D. Septic Tank

1. Open the lid to the second chamber of the septic tank and make sure access is airtight, secure and safe.
2. Odour should be a normal septic smell. If it smells putrid and extremely rotten, the tank is dead [Troubleshooting Solution D.1.]
3. Fermentation bubbles should be visible on the liquid surface. If there are no bubbles and/or there is accumulated floating paper, the tank is not healthy or dead [Troubleshooting Solution D.1.]
4. Ask the homeowner about their use of detergent with bleach, bleach pucks, disinfectants, antibiotics, dandruff shampoo, etc. that can kill a septic tank. If the septic tank is dead, pump the tank and advise homeowner to discontinue the use of these septic tank killing materials.
5. Check if the effluent filter has become unseated. If it has, remove and check for excess slime build-up. Ask the homeowner if they have removed it at any time [Troubleshooting Solution D.2.]
6. Remove the effluent filter; it should be discolored grey to dark grey with some biomat growth. If it needs to be cleaned, dip it into the septic tank or use a hose to wash it off (wash back into the septic tank). If there is excessive solids or grease build-up, talk to homeowner about kitchen habits [Troubleshooting Solution D.3.] If the filter is broken or needs replacement, contact Waterloo Biofilter Systems Inc. [Troubleshooting Solution F.2.]
7. Replace effluent filter carefully ensuring it is seated properly.

E. Control Panel

1. Make sure that the panel is in 'automatic' mode for each pump.
 2. Ensure that the Alarm Test/Normal/Silence switch is in the 'normal' position.
- If applicable*

3. Check that the timer is set properly for frequent small doses (e.g. 20 to 25 L every 20 to 25 minutes).
4. Check that the fan speed (if present) is set to medium-low.

Twenty-Four Month Inspection:

A. Disposal Bed

1. If Shallow Pressure Trench disposal is used, check the spray height of the furthest orifice in the pipes. The spray height is required to be > 60 cm. If not:
 - a. Remove end cap and flush the pipes out
 - b. Check for blockages in any laterals
 - c. Re-check spray height for compliance
 - d. If height is still not 60 cm, use Troubleshooting Solution A.4.

D. Septic Tank

1. Open first chamber of septic tank and check the scum and sludge levels. If the tank needs to be pumped, inform the homeowner.

Fill out the maintenance report and checklist and submit a copy to the homeowner, Waterloo Biofilter Systems Inc., and Chief Building Official (if required) after every inspection.