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PROPELLER BEAD FILTER BACKWASH OPERATION

The following is the sequence of operation for backwashing a PBF Filter configured with a standard external plumbing configuration.

Backwash Frequency

The backwash frequency depends on the biological and solids load in the pond. By watching the inlet pressure gauge over the course of 2-3 weeks and backwashing when the pressure climbs to 15 psi or above you should be able to determine the required backwash frequency for your installation. Note if after 5-7 days your inlet pressure is still below 15 psi, you should backwash anyway. Going longer than 5-7 days between backwashes results in the bead bed packing requiring extended propeller mix times to stir the beads which can reduce the biofiltration capacity of the filter resulting in TAN and NO2 spikes. Backwash frequency, propeller mixing duration and sludge drain time are all dependent on system loading and feed rate. As the biomass and feed rate in the system increase, you will need to be able to increase the backwash frequency, mixing duration and/or sludge drain time.

Normal Operation

1. Pump On.
2. The Inlet Valve is open to allow water to enter the filter below the bead bed.
3. The Sludge Drain is Closed.

Backwash

4. Pump Off.
5. Close the Inlet Valve to stop flow to the filter and prevent the filter from draining backwards through the pump.
6. Activate Mixing Motor. The mixing motor should be run until the beads are actively moving in the view port like ice in a blender. Typically 15-45 seconds. Over washing the beads will result in decrease biofiltration due to loss of beneficial bacteria attached to the bead media. Additionally, it is always better to wash more often and run the propeller for a shorter duration than to backwash less frequently and run the propeller longer –again this is to minimize the loss of beneficial bacterial by over mixing the bead bed.

   After mixing the filter should sit idle for 10 minutes to allow the beads to flow upwards and the solid waste to settle out into the bottom of the filter.

Drain Sludge/Backwash Waters

1. Open Sludge Drain Valve and leave open until water runs clear/clean.
2. Close Sludge Drain Valve.
3. Open the Inlet Valve to allows water to enter the filter inlet.

   Filter is once again in normal operation.