

# WaterNO<sub>x</sub>-S & WaterNO<sub>x</sub>-LS Nitrogen Removal

Removes up to 95% of total nitrogen from residential or commercial septic systems with a simple, passive, and cost-effective denitrification filter.

Available upgrade for *all* Waterloo Biofilter advanced wastewater treatment systems



Nitrogen is a nutrient naturally found in human wastewater. Excess nitrogen in groundwater is a public health concern, while excess nitrogen in surface waters can stimulate algae blooms and lake eutrophication. Not only can this be a nuisance and interfere with the enjoyment of water bodies - but serious health and ecosystem problems can result such as 'blue baby' syndrome, fish kills, and 'brown or red tide' algae toxins that accumulate in shellfish.

## Excess nitrogen in the environment can:



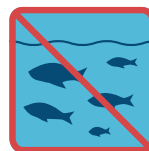
Contaminate Drinking Water Sources with High Levels of Nitrate



Limit Recreation Activities such as Swimming, Boating, and Fishing



Lower Property Values by Impairing Quality of Surface Water



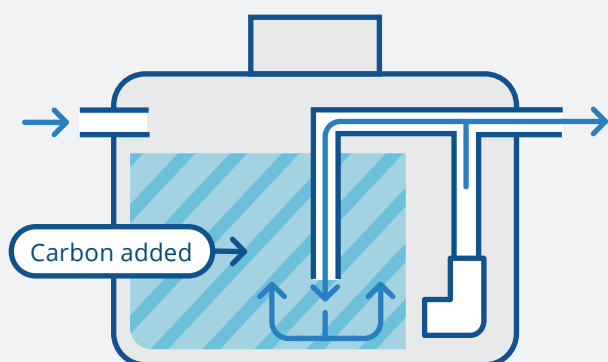
Lower Dissolved Oxygen Levels and Reduce Fish Populations

## Multiple Levels of Removal

The Waterloo Biofilter system itself removes 25-35% of total nitrogen with a single-pass configuration, and 50-65% of total nitrogen with a double-pass configuration where treated effluent is recirculated back to the septic tank. With a WaterNOx-S or WaterNOx-LS denitrification filter installed after the Waterloo Biofilter treatment unit, up to 95% total nitrogen removal can be achieved.

### WaterNOx-S

The WaterNOx-S recirculates nitrified effluent up through a plastic filtration media with external carbon source added for denitrification.



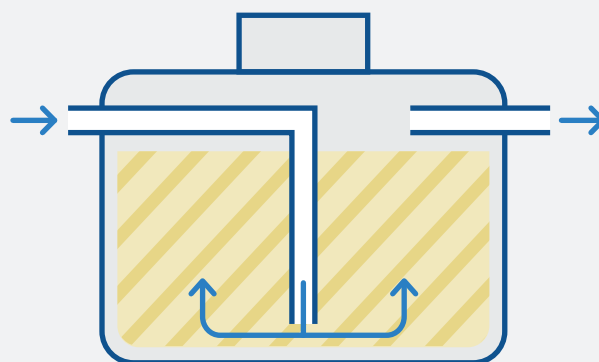
A pump re-circulates the water through the filtration media. External carbon is added.

### WaterNOx-S Benefits

- ▶ Permanent filtration medium
- ▶ Easy set-up and servicing
- ▶ No filter media backwashing
- ▶ Safe, non-toxic carbon source
- ▶ Low energy use
- ▶ New or retrofit applications

### WaterNOx-LS

The WaterNOx-LS uses autotrophic bacteria to denitrify nitrified effluent in a proprietary blend of agricultural minerals.



Water goes down to the bottom of the tank, then flows up through the media and out the outlet.

### WaterNOx-LS Benefits

- ▶ 100% passive, no energy used
- ▶ No extra pump necessary
- ▶ No chemical addition
- ▶ Long, 10+ year filter media lifespan
- ▶ Self-buffered to neutral pH
- ▶ Minimal increase to BOD and TSS

For more  
information:

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