

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

NUTRIENT-REDUCING WASTEWATER TREATMENT SYSTEM DESIGNATION FORM

DATE: July 23, 2019

APPLICATION SUBMITTAL DATE(S): April 3, 2019

SYSTEM MANUFACTURER: Bio-Microbics, Inc.

SYSTEM NAME(S): Bio-Barrier MBR 0.5 (and 0.5 N*) (500 gpd), Bio-Barrier MBR 1.0 (and 1.0-N*) (1000 gpd), and Bio-Barrier MBR 1.5 (and 1.5-N*) (1500 gpd). *N denotes the Bio-barrier system modified to add an anoxic zone compartment in the treatment process

DESIGNATED TREATMENT LEVEL¹: Level 2 (Can use 24 mg/L for effluent nitrate (as N) concentration in nitrate sensitivity analysis)

CONDITIONS:

- A. Approval of Bio-Barrier MBR systems is based on NSF/ANSI Standard 245 Nitrogen Reduction certification obtained March 2010. The system also achieved NSF/ ANSI Standard 40 Class I system certification for BOD and TSS reduction. Approval for Bio-Barrier system is for those systems with or without additional mixing pump provided by Bio-Microbics in the anoxic zone compartment of MBR “N” models.
- B. To achieve adequate nitrogen removal to meet level 2 requirements, the blower in the aerobic zone must be run continuously on all Bio-Barrier systems. The blower must be wired to the dose pump, so that if blower operation fails, the dose pump no longer operates.
- C. Additional primary treatment volume (septic tank volume) is required upgradient of the Bio-Barrier treatment unit, which does not contain adequate volume in the settling zone to meet Circular DEQ-4 Section 5.1.6.
- D. The Bio-Barrier systems inherently require pumping through the membranes prior to dosing of the absorption area, which provides a physical barrier to discharge under hydraulic failure as required in ARM 17.30.718(9).
- E. Approval is valid for residential and non-residential facilities (with residential strength wastewater). Design flows are limited by the rating of each unit and must also meet all other applicable laws, rules and design circulars are met.

APPROVED BY: Emily J. Gillespie, PE

NOTES:

1 *The definitions of level 1a, level 1b, and level 2 are in ARM 17.30.702(9), (10) and (11), respectively.*