



MARYLAND DEPARTMENT OF THE ENVIRONMENT

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Bay Restoration Fund Initial Entry Requirements for Waterless Toilets

Waterless toilets are authorized for use under Annotated Code Environment Article (§9-14A-01). Regulation 26.04.02 states that all new construction must incorporate a best available technology (BAT) for the reduction of nitrogen to the groundwater of the state of Maryland. This document is to address the process of BAT eligibility for waterless toilets that separate, collect, and store human wastewater from the toilet system for dispersal through land application under a State Groundwater Discharge Permit issued by MDE. The requirements set forth through this document are in conjunction with all MDE waterless toilet guidance documents.

Waterless toilets separate the domestic wastewater from the building into three waste streams: the human wastewater collected from the toilet system, the human waste composting solids collected from the toilet system, and the non-human graywater from the building. Each of these three waste streams will be sampled and evaluated to calculate the combined total nitrogen load from the building.

For initial entry into the Bay Restoration Fund as a BAT for the reduction of nitrogen, any waterless toilet that utilizes the Groundwater Discharge Permit for land application of the wastewater from toilet waste must follow and successfully complete the following requirements:

1. Five residential properties in the state of Maryland with existing/permitted waterless toilets, identical to the proposed model design, must be proposed for evaluation.
 - a. All properties must have the appropriate agreement and easement recorded in Land Records (Annotated Code Environment Article (§9-14A-01)).
 - b. All properties must be residential with domestic strength wastewater.
 - c. All properties must have Groundwater Discharge Permits (GDP's) and must land apply the wastewater effluent generated by the process.
 - d. MDE may visit the properties to verify that the unit is being used in the manner in which it was approved.
 - e. MDE may also verify (or require manufacturer's verification) that the unit is being maintained to the manufacturer's recommendations and requirements.
 - f. A service provider certified by the vendor and MDE shall be responsible for operating and maintaining the system.
 - g. Sampling frequency
 - i. Each of the systems will be sampled on five (5) separate occurrences.
 - ii. One week minimum (7 days) is required between sampling occurrences.
2. The BAT Technical Review Committee (BAT TRC) will evaluate this list and approve or deny each of the properties on the list before moving onto the next step in the initial entry process.
3. The manufacturer or manufacturer's representative must submit a field verification plan that includes detailed instructions for collecting samples and a sampling schedule.



- a. Adequately trained sample collection personnel shall be provided by a certified laboratory and shall be independent of the technology vendor, technology vendor's authorized service provider, and the system design engineer of record.
 - b. The technology vendor is responsible for the training of the sampling laboratory personnel. The technology vendor may be present on site at time of sampling but may not collect the samples.
 - c. Sampling methodology
 - i. At each sampling occurrence, one grab sample each will be collected from:
 1. the holding tank of the wastewater from the toilet system,
 2. the composting solids collected from the toilet systems, and
 3. the graywater system that collects and disperses the non human waste water generated from the building.
 - a. If there are multiple graywater systems, each separate system will be sampled.
 - b. A sample from the farthest rear portion of the collection tank of the graywater system, nearest to the effluent outlet will be the sampling collection point.
 - ii. All sampling results must be reported to MDE and the local Approving Authority on an as-sampled basis by the sampling organization.
 - d. Laboratory analysis protocol
 - i. Each of the grab samples collected should be tested for TN, NO₃, NO₂, TKN, NH₃, Organic Nitrogen, and Fecal Content at minimum.
 - ii. Results of the laboratory analyses must be reported in the format specified by the BAT TRC.
 - e. The BAT TRC will analyze the sampling data as it is generated/ submitted.
4. Units that are permitted under a State Groundwater Discharge Permit must show:
- i. Groundwater Discharge Permit up to date and valid
 - ii. Solids from the toilet system being removed for transport to a lined landfill
 - iii. The non-human graywater has a TN effluent under 30mg/L.
 - iv. The wastewater from the toilet system is not entering the graywater system.

All appropriate permits, MDE guidance, and processes defined in COMAR must be adhered to. The unit that is applying for BAT approval must be identical at all installations anywhere BAT is required. Should any of the items listed in this plan not be met for any reason and notification of said requirement not be furnished and verified, the unit will be removed from the BAT list and will not be allowed to re-apply.

For further explanation of applying to the Bay Restoration Fund, please feel free to contact:

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