



February 27, 2020

The Honorable Margie MacDonald, Chair
Local Government Interim Committee
P.O. Box 201704
Helena, MT 59620-1074

RE: Information on wastewater technologies and waivers

Dear Committee Members:

In response to questions raised during your last Local Government Interim Committee meeting, I am pleased to offer the attached spreadsheet which describes the different wastewater treatment components found in Ms. Henneman's report. The spreadsheet also identifies which components would require a waiver because they are "experimental" systems.

Please let me know if we can provide any additional information. Thank you for your consideration.

Regards,

A handwritten signature in blue ink, appearing to read "Tim Davis", is written over a light blue horizontal line.

Tim Davis
Division Administrator
DEQ Water Quality Division

System Type	Description	Experimental System in Montana?
Septic Tank	A subsurface tank that holds raw wastewater for settling prior to treatment or disposal. This tank captures most the wastewater solids	No
Pressure distribution system	Effluent is stored in a tank and then sent out to the drainfield with a pump or siphon when a appropriate volume has accumulated or when a set time period has passed.	No
Absorption Trench	Standard 2 or 3 foot wide excavation with perforated pipe or infiltrators to distribute effluent. Trench walls must be 5' apart for gravity systems or 4' apart for pressure dosed systems.	No
Absorption bed	Absorption trenches that are placed right next to each other with no distance between trench walls so the drainfield is significantly smaller than a standard system.	No but only allowed for replacement systems.
Sand Mound	An above-ground mound of sand designed for wastewater disposal. Generally used in Montana where a standard trench cannot be used because of shallow groundwater or bedrock.	No
Gray water irrigation	A wastewater system that collects and disposes of household wastewater not collected from toilets.	No
Composting Toilet	A dry (not water carried) unit that naturally decomposes toilet waste. Typically, the household gray water is handled with a subsurface gray water irrigation system.	No
Incinerating Toilet	A dry (not water carried) unit that incinerates toilet waste. Typically, the household gray water is handled with a subsurface gray water irrigation system.	No with waste segregation but also see Total Incineration System below.
Evapotranspiration System	A system installed in very low permeability soils with either very little absorption or an impermeable liner so there is no absorption. Evaporation and transpiration is used to decrease the wastewater volume.	No
Chamber technology	Plastic domes that allow more even effluent distribution used in place of drainfield laterals.	No
Subsurface drip	Shallow buried flexible pipe with drip emitters to dispose of waste or gray water. Advanced treatment must precede this disposal method.	No
Recirculating Media Trickling filter	An in-ground tank filled with media designed to provide nitrogen and organic treatment. Wastewater is sprayed over the media and recirculated back through the system.	No
Intermittent sand filter	In-ground beds of graded sand that are intermittently dosed. Effluent is collected at the bottom of the filter and sent to a drainfield. Used to treat organics and nitrogen but not approved for Level 2 treatment.	No
Recirculating sand filter	Similar to an intermittent sand filter but effluent is collected at the bottom of the filter and a certain percentage is recirculated through the filter. Approved for Level 2 treatment.	No
Aerobic Wastewater Treatment unit	A pre-treatment system that introduces air into wastewater to treat high BOD (biological oxygen demand).	No
Chemical Nutrient reduction system	Chemical addition to help treat phosphorus or nitrogen. Not commonly used in Montana.	No
Gravelless trench	See chamber technology above.	No
Engineered pad	See sand mound technology above.	No

Peat Filter	A drainfield with a peat layer under the distribution system to provide nitrogen and organics treatment.	Yes. Would also need to meet Level 2 treatment criteria if used for nondegradation purposes.
Surface disposal	Discharge of treated wastewater effluent to surface water bodies.	No, but requires a surface water discharge permit.
Tire chip aggregate	Ground up tires used in place of aggregate to surround drainfield laterals.	No, but would require a deviation from Circular DEQ-4.
In-ground Nitrogen- reducing Biofilters (INRB)	Specific media (filters, sand, woodchips) placed below a drainfield that provides nitrogen treatment.	Yes. Would also need to meet Level 2 treatment criteria if used for nondegradation purposes.
Absorption trenches in saprolite	Drainfields in decomposed rock.	No, if material contains enough sand, silt or clay to determine textural class (typically 10% by volume).
Chemical Recirculating toilet	Toilets that use disinfectant and other chemicals as the toilet flush fluid. The wastes are separated from the fluid, discharged to an internal holding tank, and the fluid reused for flushing.	No but holding tanks are only allowed for replacement systems.
Total Incineration system	A wastewater system that collects and burns all household sewage (black and gray water). There is no discharge to the environment so setbacks to groundwater do not have to be maintained, and a nondegradation analysis is not required.	Yes. Two have been approved in Montana this year.