

Wastewater Treatment Glossary

Circular DEQ4

- 1.2.1. **Absorption area** means that area determined by multiplying the length and width of the bottom area of the disposal trench or bed.
- 1.2.2. **Absorption bed** means an absorption system that consists of excavations greater than 3 feet in width where the distribution system is laid for the purpose of distributing pretreated waste effluent into the ground.
- 1.2.3. **Absorption system** means any secondary treatment system, including absorption trenches, elevated sand mounds, evapotranspiration absorption (ETA), gray water irrigation, and subsurface drip systems, used for subsurface disposal of pretreated waste effluent.
- 1.2.4. **Absorption trench** means an absorption system that consists of excavations 18 to 36 inches in width where the distribution system is laid for the purpose of distributing pretreated waste effluent into the ground.
- 1.2.5. **Accessory building** means a subordinate building or structure on the same lot as the main building, which is under the same ownership as the main building, and which is devoted exclusively to an accessory use such as a garage, workshop, art studio, guest house, or church rectory.
- 1.2.6. **Advanced treatment** means a treatment process that provides effluent quality in excess of primary treatment.
- 1.2.7. **Aerobic wastewater treatment unit** means a wastewater treatment plant that incorporates a means of introducing air and oxygen into the wastewater so as to provide aerobic biochemical stabilization during detention period. Aerobic wastewater treatment facilities may include anaerobic processes as part of the treatment system.
- 1.2.8. **Bedrock** means material that cannot be readily excavated by hand tools, material that does not allow water to pass through, or material that does not provide for the adequate treatment and disposal of wastewater.
- 1.2.9. **Bedroom** means any room that is or may be used for sleeping. An unfinished basement is considered an additional bedroom.
- 1.2.10. **Blackwater** means any wastewater that includes waste from toilets.
- 1.2.11. **BOD₅ (5-day biochemical oxygen demand)** means the quantity of oxygen used in the biochemical oxidation of organic matter in 5 days at 20 degrees centigrade under specified conditions and reported as milligrams per liter (mg/L).
- 1.2.12. **Building drain** means the pipe extending from the interior plumbing to a point 2 feet

outside the foundation wall.

- 1.2.13. **Building sewer** means the pipe connecting the house or building drain to the public sewer or private sewer.
- 1.2.14. **Cleanout** means access to a sewer line, extending from the sewer line to the ground surface or inside the foundation, used for access to clean a sewer line.
- 1.2.15. **Commercial unit** means the area under one roof occupied by a business. For example, a building housing two businesses under one roof is considered two commercial units.
- 1.2.16. **Composting toilet** means a system consisting of a compartment or a vault that contains or will receive composting materials sufficient to reduce human waste by aerobic decomposition.
- 1.2.17. **Connection** means a line that provides water or sewer service to a single building or main building with accessory buildings. The term is synonymous with "service connection."
- 1.2.18. **Design flow** means the flow used for sizing hydraulic facilities, such as pumps, piping, storage, and absorption systems.
- 1.2.19. **Distribution box** means a watertight receptacle that receives septic tank effluent and distributes it equally into two or more pipes leading to the absorption area.
- 1.2.20. **Distribution pipe** means a perforated pipe used in the dispersion of septic tank or other treatment facility effluent into a subsurface wastewater treatment system.
- 1.2.21. **Dosed system** means any system that utilizes a pump, siphon, or actuated valves to deliver treated effluent to a subsurface absorption area.
- 1.2.22. **Dosing frequency** means the number of times per day that effluent is applied to an absorption system or sand filter.
- 1.2.23. **Dosing tank** means a watertight receptacle receiving effluent from the septic tank or another treatment device, equipped with a siphon or a pump designed to discharge effluent.
- 1.2.24. **Dosing volume** means the volume of effluent, in gallons applied to an absorption system or sand filter each time a pump is activated or each time a siphon functions.
- 1.2.25. **Drain rock** means the rock or coarse aggregate used in an absorption system, sand filter, or seepage pit. Drain rock must be washed, be a maximum of 2.5 inches in diameter and larger than the orifice size unless shielding is provided to protect the orifice, and contain no more than 2 percent passing the No. 8 sieve. The material must be of sufficient competency to resist slaking or dissolution. Gravels of shale, sandstone, or limestone may degrade and may not be used.
- 1.2.26. **Drop box** means a watertight structure that receives septic tank effluent and distributes it into one or more distribution pipes and into an overflow leading to another drop box

and/or absorption system located at a lower elevation.

- 1.2.27. **Effective size** means the sieve size in millimeters (mm) allowing only 10 percent of the material to pass as determined by wet-test sieve analysis method ASTM C 117-95.
- 1.2.28. **Effluent** means partially treated wastewater from a primary, advanced, or other treatment facility.
- 1.2.29. **Effluent filter** means an effluent treatment device installed on the outlet of a septic tank designed to prevent the passage of suspended matter larger than 1/8 inch in size.
- 1.2.30. **Effluent pump** means a pump used to convey wastewater that has been partially treated from a septic tank or other treatment facility. This wastewater has had settleable or floatable solids removed.
- 1.2.31. **Ejector pump** means a pump that transports raw sewage.
- 1.2.32. **Emitter** means orifices that discharge effluent at controlled rates, usually specified in gallons-per-hour (gph). Emitters are typically found in subsurface drip irrigation systems.
- 1.2.33. **Fats, oils, grease (FOG)** means a component of wastewater typically originating from food stuffs (animal fats or vegetable oils) or consisting of compounds of alcohol or glycerol with fatty acids (soaps and lotions).
- 1.2.34. **Fill** means artificially placed soil.
- 1.2.35. **Gravity dose** means a known volume (dose) of effluent that is delivered to an absorption system in a specific time interval. The effluent is delivered either by a siphon or by a pump to a drop box, distribution box, or manifold. The drop box, distribution box, or manifold then distributes effluent into a non-pressurized absorption system.
- 1.2.36. **Gray water** means wastewater that is collected separately from a sewage flow and that does not contain industrial chemicals, hazardous wastes, or wastewater from toilets.
- 1.2.37. **Grease trap** means a device designed to separate fats, grease, and oils from the effluent.
- 1.2.38. **Grinder pump** means a pump that shreds solids and conveys wastewater through a sewer to primary or advanced treatment.
- 1.2.39. **High-strength waste** means effluent from a septic tank or other treatment device that has BOD₅ greater than 300 mg/L, TSS greater than 150 mg/L, or fats, oils, and grease greater than 25 mg/L.
- 1.2.40. **Holding tank** means a watertight receptacle that receives wastewater for retention and does not, as part of its normal operation, dispose of or treat the wastewater.
- 1.2.41. **Horizon** means a layer in a soil profile that can be distinguished from each of the layers

directly above and beneath it by having distinctly different physical, chemical, and/or biological characteristics.

- 1.2.42. **Impervious layer** means any layer of material that has a percolation rate slower than 240 minutes per inch (mpi).
- 1.2.43. **Incinerating toilet** means a self-contained unit consisting of a holding tank and an adequate heating system to incinerate waste products deposited in the holding tank. The incineration by-products are primarily water and a fine ash.
- 1.2.44. **Individual wastewater system** means a wastewater system that serves one living unit or commercial unit. The term does not include a public sewage system as defined in 75-6-102, MCA.
- 1.2.45. **Industrial wastewater** means any waste from industry or from the development of any natural resource, together with any sewage that may be present.
- 1.2.46. **Infiltrative surface** means the soil interface that receives the effluent wastewater below the drain rock or sand.
- 1.2.47. **Influent** means the wastewater flow stream prior to any treatment.
- 1.2.48. **Irrigation** means those systems that provide subsurface application of wastewater to any planted material by means of a piping system.
- 1.2.49. **Key** means to hollow out in the form of a groove.
- 1.2.50. **Limiting layer** means bedrock, an impervious layer, or seasonally high ground water.
- 1.2.51. **Living unit** means the area under one roof that can be used for one residential unit and which has facilities for sleeping, cooking, and sanitation. A duplex is considered two living units.
- 1.2.52. **Main** means any line providing water or sewer to multiple service connections, any line serving a water hydrant that is designed for firefighting purposes, or any line that is designed to water or sewer main specifications.
- 1.2.53. **Manhole** means an access to a sewer line for cleaning or repair.
- 1.2.54. **Manifold** means a solid (non-perforated) wastewater line that distributes effluent to individual distribution pipes.
- 1.2.55. **Mottling or redoximorphic features** means soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation and desaturation with water.
- 1.2.56. **Multiple-user wastewater system** means a non-public wastewater system that serves, or

is intended to serve, more than two living or commercial units, but which is not a public sewage system as defined in 75-6-102, MCA. The total number of people served may not exceed 24. In estimating the population that will be served by a proposed residential system, the reviewing authority shall multiply the number of living units times 2.5 people per living unit.

- 1.2.57. **Natural soil** means soil that has developed in place through natural processes and to which no fill material has been added.
- 1.2.58. **Orifice** means an opening or hole through which wastewater can exit the distribution pipe.
- 1.2.59. **Percolation test** means a standardized test used to assess the infiltration rate of soils performed in accordance with Appendix A.
- 1.2.60. **Plasticity** means the ability of a soil sample to be rolled into a wire shape with a diameter of 3 mm without crumbling.
- 1.2.61. **Pressure distribution** means an effluent distribution system where all pipes are pressurized and the effluent is pumped, or delivered by siphon, to the next portion of the treatment system in a specific time interval or volume.
- 1.2.62. **Pretreatment** means the wastewater treatment that takes place prior to discharging to any component of a wastewater treatment and disposal system including, but not limited to, pH adjustment, oil and grease removal, BOD₅, and TSS reduction, screening, and detoxification.
- 1.2.63. **Primary treatment** means a treatment system, such as a septic tank, that provides retention time to settle the solids in raw wastewater and that retains scum within the system.
- 1.2.64. **Private sewer** means a sewer receiving the discharge from one building sewer and conveying it to the public sewer system or a wastewater treatment system.
- 1.2.65. **Professional engineer** means an engineer licensed or otherwise authorized to practice engineering in Montana pursuant to Title 37, Chapter 67, MCA.
- 1.2.66. **Proprietary system** means a wastewater treatment method holding a patent or trademark.
- 1.2.67. **Public wastewater system** means a system for collection, transportation, treatment, or disposal of wastewater that serves 15 or more families or 25 or more persons daily for any 60 days or more in a calendar year. In estimating the population that will be served by a proposed residential system, the reviewing authority shall multiply the number of living units times 2.5 people per living unit, so that 10 or more proposed residential connections will be considered a public system.
- 1.2.68. **Qualified site evaluator** means a soils scientist, professional engineer, registered sanitarian, hydro geologist, or geologist who has experience and knowledge of soil

morphology. Other individuals will be considered qualified after providing, to the reviewing authority, evidence of experience describing soils or experience conducting necessary test procedures.

- 1.2.69. **Raw wastewater** means wastewater that has not had settleable solids removed through primary treatment or other approved methods.
- 1.2.70. **Recreational camping vehicle (RV)** means a vehicular unit designed primarily as temporary living quarters for recreation, camping, travel, or seasonal use, and that either has its own power or is mounted on, or towed by, another vehicle. The basic types of RVs are camping trailer, fifth-wheel trailer, motor home, park trailer, travel trailer, and truck camper.
- 1.2.71. **Redoximorphic or mottling features** means soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation and desaturation with water.
- 1.2.72. **Residential strength wastewater** means effluent from a septic tank or other treatment device with a BOD₅ less than or equal to 300 mg/L, TSS less than or equal to 150mg/L, and fats, oils, and grease less than or equal to 25 mg/L.
- 1.2.73. **Reviewing authority** means the Department of Environmental Quality, a local department or board of health certified to conduct reviews under 76-4-104, MCA, a division of local government delegated to review public wastewater systems pursuant to ARM 17.38.102, a local unit of government that has adopted these standards pursuant to 76-3-504, MCA, or a local board of health that has adopted these standards pursuant to 50-2-116, MCA.
- 1.2.74. **Scarify** means to make shallow cuts in order to break the surface.
- 1.2.75. **Seasonally high ground water** means the depth from the natural ground surface to the upper surface of the zone of saturation, as measured in an unlined hole or perforated observation well during the time of the year when the water table is the highest. The term also means the upper surface of a perched water table.
- 1.2.76. **Septic tank** means a wastewater settling tank in which settled sludge is in immediate contact with the wastewater flowing through the tank while the organic solids are decomposed by anaerobic action.
- 1.2.77. **Service connection** means a line that provides water or sewer service to a single building or main building with accessory buildings. The term is synonymous with "connection."
- 1.2.78. **Sewage** is synonymous with "wastewater" for purposes of this Circular.
- 1.2.79. **Sewer invert** means the inside bottom, or flow line, of a sewer pipe.
- 1.2.80. **Shared wastewater system** means a wastewater system that serves, or is intended to serve, two living units, two commercial units, or a combination of one living unit and one

commercial unit. The term does not include a public sewage system as defined in 75-6-102, MCA.

- 1.2.81. **Siphon** means a pipe fashioned in an inverted U shape and filled until atmospheric pressure is sufficient to force a liquid from a reservoir in one end of the pipe over a barrier and out the other end.
- 1.2.82. **Slope** means the rate that a ground surface declines in feet per 100 feet. It is expressed as percent of grade.
- 1.2.83. **Soil consistence** means attributes of soil material as expressed in degree of cohesion and adhesion or in resistance to deformation or rupture. For the purposes of this Circular consistence includes resistance of soil material to rupture, resistance to penetration, plasticity, toughness, and stickiness of puddled soil material, and the manner in which the soil material behaves when subject to compression. Although several tests are described, only those should be applied which may be useful.
- 1.2.84 **Soil profile** means a description of the soil strata to a depth of eight feet using the United States Department of Agriculture (USDA) soil classification system method in Appendix B.
- 1.2. 85. **Soil texture** means the amount of sand, silt, or clay measured separately in a soil mixture.
- 1.2. 86. **Surge tank** means a watertight structure or container that is used to buffer flows.
- 1.2. 87. **Synthetic drainage fabric** means a nonwoven drainage fabric with a minimum weight per square yard of 4 ounces, a water flow rate of 100 to 200 gallons per minute per square foot, and an apparent opening size equivalent to a No. 50 to No. 110 sieve.
- 1.2. 88. **Total Suspended Solids (TSS)** means solids in wastewater that can be removed by standard filtering procedures in a laboratory and is reported as milligrams per liter (mg/L).
- 1.2. 89. **Transport pipe** means the pipe leading from the septic tank or dose tank to the distribution box or manifold.
- 1.2. 90. **Uniformity coefficient (UC)** means the sieve size in millimeters (mm) that allows 60 percent of the material to pass (D60), divided by the sieve size in mm allowing 10 percent of the material to pass (D10), as determined by ASTM C 117-95 ($UC=D60/D10$).
- 1.2.91. **Uniform distribution** is a means to distribute effluent into a pressure dosed absorption system or sand filter such that the difference in flow, measured in gallons per day per square foot, throughout the treatment system is less than 10 percent.
- 1.2.92. **Waste segregation** means a method by which human toilet waste is disposed of through composting, chemical, dehydrating, or incinerator treatment, with a separate disposal method for gray water.

- 1.2.93. **Wastewater** means water-carried waste including, but not limited to, household, commercial, or industrial wastes, chemicals, human excreta, or animal and vegetable matter in suspension or solution.
- 1.2.94. **Wastewater treatment system or wastewater disposal system** means a system that receives wastewater for purposes of treatment, storage, or disposal. The term includes all disposal methods described in this Circular.
- 1.2.95. **Wet well** means a chamber in a pumping station, including a submersible pump station, where wastewater collects.