

Nondegradation Rulemaking

MAR 17-439

Proposed Nondegradation and Mixing Zone Rule Revisions

Attachments – Proposed rule changes to:

ARM 17.30.508

ARM 17.30.517

ARM 17.30.702

ARM 17.30.715

ARM 17.30.716 (table revised 12/13/23 to include footnotes)

ARM 17.30.718

17.30.508 SPECIFIC RESTRICTIONS FOR GROUND WATER MIXING ZONES

(1) Mixing zones for ground water are to be limited and comply with the following water quality standards:

(a) Human health based ground water standards must not be exceeded beyond the boundaries of the mixing zone.

(2) No mixing zone for ground water will be allowed if the zone of influence of an existing or proposed drinking water supply well will intercept the mixing zone.

History: [75-5-301](#), MCA; IMP, [75-5-301](#), MCA; NEW, 1994 MAR p. 2136, Eff. 8/12/94; TRANS, from DHES, 1996 MAR p. 1499.

17.30.517 STANDARD MIXING ZONES FOR GROUND WATER

(1) The following criteria apply to determine which discharges qualify for a standard ground water mixing zone:

(a) A standard ground water mixing zone is generally applicable in unconfined aquifers, but may not be appropriate for semi-confined or confined aquifers or in aquifers where ground water moves through fractures.

(b) Disposal systems that discharge to ground water through infiltration, drainfieldsabsorption systems, injection through a disposal well, leakage from an impoundment, seepage from a land application area, or other methods may qualify for a standard mixing zone.

(c) To determine if the discharge qualifies for a standard ground water mixing zone, the person proposing the discharge must estimate the anticipated concentration of pollutants at the downgradient boundary of the mixing zone (aquatic life standards do not apply in ground water). If the estimated concentration meets the nonsignificance criteria at the boundary of the mixing zone, as specified in ARM Title 17, chapter 30, subchapter 7, the discharge qualifies for a standard mixing zone.

(d) The estimation required in (c) must be based on a calculation of the volume of water moving through a standard cross-section of aquifer. The calculated volume of water moving through the aquifer cross-section is hypothetically mixed with the known volume and concentration of the discharge to determine the resulting concentration at the boundary of the mixing zone. The recommended method to determine the resulting concentration at the boundary of a standard ground water mixing zone is described below:

(i) Computations of the volume of ground water available for mixing are based on the equation: $Q = KIA$, where:

(A) Q = volume of flow (feet³/day);

(B) K = hydraulic conductivity (feet/day);

(C) I = gradient (feet/foot); and

(D) A = aquifer cross-section area (feet²).

(ii) Values for hydraulic conductivity (K) and gradient (I) may be obtained from field observations or estimated from other sources.

(iii) A specific depth and width are necessary to determine the aquifer cross-section area (A) for a standard mixing zone. The aquifer cross-section area prescribed by the following lengths is used as the area (A) in the equation:

(A) The depth of a standard ground water mixing zone extends from the top of the water table beneath the source down to 15 feet below the water table.

(B) The width of a standard mixing zone is equal to the width of the source plus the distance determined by the tangent of 5° times the length of the mixing zone on both sides of the source.

(iv) It is assumed that mixing between the discharge and the receiving ground water is complete at the aquifer cross-section area at the standard distance downgradient from the source.

(v) It is also assumed that pollutants discharged from the source do not change in volume or concentration as they migrate through the unsaturated zone down to the water table except as allowed in (vi).

(vi) For total nitrogen in residential strength wastewater discharged from a wastewater system that does not require an MPDES or MGWPCS permit, the waste load as described in (vii)(B) may be reduced in the vadose zone and saturated zone to account for natural attenuation using Montana's Septic Trading Method in Appendix A of Circular DEQ-13.

(vii) The concentration of the parameter in the ground water must be measured to determine the existing load present in the ground water. The calculated volume of ground water with a measured concentration is hypothetically mixed with the known volume and concentration of the discharge using the following procedure:

(A) Volume of ground water times the concentration of the parameter = existing load;

(B) Volume of discharge times the concentration of the parameter = waste load; and

(C) (Existing load + waste load)/total volume = resulting concentration.

(viii) If the resulting concentration does not exceed the nonsignificance criteria specified in ARM Title 17, chapter 30, subchapter 7, for new or increased sources at the mixing zone boundary, a standard mixing zone may be granted.

(ix) The downgradient boundary of the standard mixing zone extends:

(A) Between 100 and 500 feet as proposed by the applicant for a single family individual or shared wastewater septic system drainfield absorption systems that discharge residential strength wastewater; ~~in towns or subdivisions where individual lots are less than two acres in size;~~

(B) ~~200 feet for a single family septic system in subdivisions of five to 10 acres where lots are two acres in size or larger~~ Between 200 and 500 feet as proposed by the applicant for multiple-user wastewater absorption systems that discharge residential strength wastewater with a design flow greater than 800 gpd;

(C) Between 100 and 500 feet as proposed by the applicant for commercial, multiple-user, or public wastewater absorption systems that discharge residential strength wastewater if the design flow is 800 gpd or less; and

~~(C) For subdivisions with centralized water service, to the exterior boundaries of the contiguous surrounding undeveloped land, if development of that land is prohibited in perpetuity and title evidence of this fact is provided to the department.~~

(D) 500 feet for any other source of waste, including industrial wastewater, discharging into ground water.

(x) Monitoring may be required at the downgradient boundary of the mixing zone to measure compliance for a ground water mixing zone established for other than ~~a single family septic system drainfield~~ an individual wastewater absorption system, if there is an overriding site-specific impact-related reason to require monitoring and the mixing zone is within 500 feet of surface water, another ground water mixing zone, or a drinking water well, or if there is some other overriding site-specific, impact-related reason to require monitoring. (History: 75-5-301, MCA; IMP, 75-5-301, MCA; NEW, 1994 MAR p. 2136, Eff. 8/12/94; TRANS, from DHES, 1996 MAR p. 1499.)

17.30.702 DEFINITIONS

The following definitions, in addition to those in 75-5-103, MCA, apply throughout this subchapter (Note: 75-5-103, MCA, includes definitions for "base numeric nutrient standards," "degradation," "existing uses," "high quality waters," "mixing zone," and "parameter"):

(1) "Bioconcentrating parameters" means the parameters listed in department Circular DEQ-7 which have a bioconcentration factor greater than 300.

(2) "Carcinogenic parameters" means the parameters listed as carcinogens in department Circular DEQ-7.

(3) "Degradation" is defined in 75-5-103, MCA, and also means any increase of a discharge that exceeds the limits established under or determined from a permit or approval issued by the department prior to April 29, 1993.

(4) "Existing water quality" means the quality of the receiving water, including chemical, physical, and biological conditions immediately prior to commencement of the proposed activity or that which can be adequately documented to have existed on or after July 1, 1971, whichever is the highest quality.

(5) "Ground water" means water occupying the voids within a geologic stratum and within the zone of saturation.

(6) "Harmful parameters" means the parameters listed as harmful in department

(7) "Highest statutory and regulatory requirements" means all applicable effluent limitations, water quality standards, permit conditions, water quality protection practices, or reasonable land, soil, and water conservation practices. It also means compliance schedules or corrective action plans for the protection of water issued under order of a court, department, or board of competent jurisdiction.

(8) "High quality waters" is defined in 75-5-103(13), MCA, and does not include Class I surface waters (ARM 17.30.628) or Class III or Class IV ground waters (ARM 17.30.1006(3) through (4)).

~~(9) "Level 1a treatment" means a subsurface wastewater treatment system (SWTS) that:~~

~~(a) removes at least 50 percent, but less than 60 percent, of total nitrogen as measured from the raw sewage load to the system; or~~

~~(b) discharges a total nitrogen effluent concentration of greater than 24 mg/L, but not greater than 30 mg/L. The term does not include treatment systems for industrial waste. A level 1a designation allows the use of 30 mg/L nitrate (as N) as the nitrate effluent concentration for mixing zone calculations.~~

~~(10) "Level 1b treatment" means a SWTS that:~~

~~(a) removes at least 34 percent, but less than 50 percent, of total nitrogen as measured from the raw sewage load to the system; or~~

~~(b) discharges a total nitrogen effluent concentration of greater than 30 mg/L, but not greater than 40 mg/L. The term does not include treatment systems for industrial waste. A level 1b designation allows the use of 40 mg/L nitrate (as N) as the nitrate effluent concentration for mixing zone calculations.~~

~~(911) "Level 2 treatment" means a SWTS that:~~

~~(a) removes at least 60 percent of total nitrogen as measured from the raw wastewatersewage load to the system; or~~

~~(b) discharges a total nitrogen effluent concentration of 24 mg/L or less. The term does not include treatment systems for industrial waste.~~

~~(10) "Level 3 treatment" means a SWTS that:~~

(a) removes at least 75 percent of total nitrogen as measured from the raw wastewater load to the system; or

(b) discharges a total nitrogen effluent concentration of 15 mg/L or less. The term does not include treatment systems for industrial waste.

(11) "Level 4 treatment" means a SWTS that:

(a) removes at least 87.5 percent of total nitrogen as measured from the raw wastewater load to the system; or

(b) discharges a total nitrogen effluent concentration of 7.5 mg/L or less. The term does not include treatment systems for industrial waste.

(12) "Load" means the mass of a parameter per unit of time.

(13) "Management or conservation practice" means a measure to control or minimize pollution of ground and surface waters from a nonpoint source. Examples of such measures include, but are not limited to, revegetation of disturbed soil, grazing management to prevent overgrazing, contour farming, strip farming, protection of riparian areas, drainage control, and impoundments which detain surface runoff or irrigation return water for sediment control.

(14) "Mixing zone" is defined in 75-5-103, MCA, and also means a limited area of a surface water body or a portion of an aquifer, where initial dilution of a discharge takes place and where water quality changes may occur and where certain water quality standards may be exceeded.

(15) "Montana pollutant discharge elimination system" or "MPDES" means the permit system developed by the state of Montana for controlling the discharge of pollutants from point sources into state waters, pursuant to ARM Title 17, chapter 30, subchapter 13.

(16) "Montana ground water pollution control system" or "MGWPCS" means the permit system developed by the state of Montana for controlling the discharge of pollutants into state ground water, pursuant to ARM Title 17, chapter 30, subchapter 10.

(17) "New or increased source" means an activity resulting in a change of existing water quality occurring on or after April 29, 1993. The term does not include the following:

(a) sources from which discharges to state waters have commenced or increased on or after April 29, 1993, provided the discharge is in compliance with the conditions of, and does not exceed the limits established under or determined from, a permit or approval issued by the department prior to April 29, 1993.

(b) nonpoint sources discharging prior to April 29, 1993;

(c) withdrawals of water pursuant to a valid water right existing prior to April 29, 1993; and

(d) activities or categories of activities causing nonsignificant changes in existing water quality pursuant to ARM 17.30.670, 17.30.715, 17.30.716, or 75-5-301(5)(c), MCA.

(18) "Nonpoint source" means a diffuse source of pollutants resulting from the activities of man over a relatively large area, the effects of which normally must be addressed or controlled by a management or conservation practice.

(19) "Ordinary high-water mark" means the line that water impresses on land by covering it for sufficient periods to cause physical characteristics that distinguish the area below the line from the area above it. Characteristics of the area below the line include, when appropriate, but are not limited to deprivation of the soil of substantially all terrestrial vegetation and destruction of its agricultural vegetative value. A flood plain adjacent to surface waters is not considered to lie within the surface waters' high-water marks.

(2049) "Outstanding resource waters" or "ORW" has the meaning set out in 75-5-103, MCA.

(2120) "Permit" means either an MPDES permit or an MGWPCS permit.

(2224) "Reporting values (RRV)" means the detection level that must be achieved in reporting surface water or ground water monitoring or compliance data to the department unless otherwise specified in a permit, approval, or authorization issued by the department. The RRV is the board's best determination of a level of analysis that can be achieved by the majority of commercial, university, or governmental laboratories using EPA approved methods or methods approved by the department. The RRV is listed in Department Circular DEQ-7, Department Circular DEQ-12A, and in the definition of "total inorganic phosphorus."

(2322) "Surface waters" means any water on the earth's surface including, but not limited to, streams, lakes, ponds, and reservoirs and irrigation drainage systems discharging directly into a stream, lake, pond, reservoir, or other water on the earth's surface. Water bodies used solely for treating, transporting, or impounding pollutants are not considered surface water for the purposes of this subchapter.

(2423) "Total nitrogen" means the sum of all nitrate, nitrite, ammonia, and organic nitrogen, as N, in an unfiltered water sample. Total nitrogen in a sample may also be determined by persulfate digestion, or as the sum of total kjeldahl nitrogen plus nitrate plus nitrite.

(2524) "Total phosphorus" means the sum of orthophosphates, polyphosphates, and organically bound phosphates, as P, in an unfiltered water sample. Total phosphorus may also be determined directly by persulfate digestion.

(2625) "Toxic parameters" means the parameters listed as toxic in department Circular DEQ-7.

(2726) "Trigger values" means the values listed as trigger values in department Circular DEQ-7 for parameters categorized as toxic, and are used to determine if proposed activities will cause degradation.

(2827) The board adopts and incorporates by reference:

(a) Department Circular DEQ-7, entitled "Montana Numeric Water Quality Standards" (June 2019 edition), which establishes numeric water quality standards for toxic, carcinogenic, bioconcentrating, radioactive, and harmful parameters and also establishes human health-based water quality standards for the following specific nutrients with toxic effects:

- (i) nitrate;
- (ii) nitrate + nitrite; and
- (iii) nitrite;

(b) Department Circular DEQ-12A, entitled "Montana Base Numeric Nutrient Standards" (December 2013 edition), which establishes numeric water quality standards for total nitrogen and total phosphorus in surface waters;

(c) Department Circular DEQ-4, entitled "Montana Standards for Subsurface Wastewater Treatment Systems" (~~20232013~~ edition), which establishes technical standards for construction of subsurface wastewater treatment systems; and

(d) 40 CFR Part 136 (July 1, 2015) which contains guidelines establishing test procedures for the analysis of pollutants.

(e) Copies of this material may be obtained from the Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901.

(History: 75-5-301, 75-5-303, MCA; IMP, 75-5-303, MCA; NEW, 1994 MAR p. 2136, Eff. 8/12/94; AMD, 1995 MAR p. 1798, Eff. 9/15/95; AMD, 1996 MAR p. 555, Eff. 2/23/96; TRANS, from DHES, 1996 MAR p. 1499; AMD, 1999 MAR p. 94, Eff. 1/15/99; AMD, 1999 MAR p. 2257, Eff. 10/8/99; AMD, 1999 MAR p. 2275, Eff. 10/8/99; AMD, 2002 MAR p. 387, Eff. 2/15/02; AMD, 2003 MAR p. 217, Eff. 2/14/03; AMD, 2004 MAR p. 725, Eff. 4/9/04; AMD, 2004 MAR p. 1384, Eff. 6/18/04; AMD, 2006 MAR p. 528, Eff. 2/24/06; AMD, 2008

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MAR p. 946, Eff. 5/9/08; AMD, 2009 MAR p. 1786, Eff. 10/16/09; AMD, 2010 MAR p. 1796, Eff. 8/13/10; AMD, 2012 MAR p. 2060, Eff. 10/12/12; AMD, 2013 MAR p. 2081, Eff. 11/15/13; AMD, 2014 MAR p. 1815, Eff. 8/8/14; AMD, 2017 MAR p. 602, Eff. 5/13/17; AMD, 2019 MAR p. 826, Eff. 6/22/19.)

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17.30.715 CRITERIA FOR DETERMINING NONSIGNIFICANT CHANGES IN WATER QUALITY

(1) The following criteria will be used to determine whether certain activities or classes of activities will result in nonsignificant changes in existing water quality due to their low potential to affect human health or the environment. These criteria consider the quantity and strength of the pollutant, the length of time the changes will occur, and the character of the pollutant. Except as provided in (2), changes in existing surface or ground water quality resulting from the activities that meet all the criteria listed below are nonsignificant, and are not required to undergo review under 75-5-303, MCA:

(a) activities that would increase or decrease the mean monthly flow of a surface water by less than 15 percent or the seven-day ten-year low flow by less than 10 percent;

(b) discharges containing carcinogenic parameters or parameters with a bioconcentration factor greater than 300 at concentrations less than or equal to the concentrations of those parameters in the receiving water;

(c) discharges containing toxic parameters, which will not cause changes that ~~equal or~~ exceed the trigger values in Department Circular DEQ-7. Whenever the change exceeds the trigger value, the change is not significant if the resulting concentration outside of a mixing zone designated by the department does not exceed 15 percent of the lowest applicable standard;

(d) changes in the concentration of nitrate in ground water which will not cause degradation of surface water if the sum of the predicted concentrations of nitrate at the boundary of any applicable mixing zone will not exceed the following values:

(i) 7.5 mg/L for nitrate sources other than domestic sewage;

(ii) 5.0 mg/L for domestic sewage effluent discharged from a conventional wastewater treatment~~septic~~ system;

(iii) 7.5 mg/L for domestic sewage effluent discharged from a wastewater treatment~~septic~~ system using level ~~2~~two, level 3, or level 4 treatment, as defined in ARM 17.30.702; or

(iv) 7.5 mg/L for domestic sewage effluent discharged from a conventional wastewater treatment~~septic~~ system in areas where the ground water nitrate level exceeds 5.0 mg/L primarily from sources other than human waste.

For purposes of this subsection (d), the word "nitrate" means nitrate as nitrogen; ~~and~~

(e) changes in concentration of total inorganic phosphorus in ground water if water quality protection practices approved by the department have been fully implemented and if an evaluation of the phosphorus adsorptive capacity of the soils in the area of the activity indicates that phosphorus will be removed for a period of 50 years prior to a discharge to any surface waters;

(f) changes in the quality of water for any harmful parameter, nutrients listed at ARM 17.30.631, and parameters listed in Department Circular DEQ-12A, except as specified in (1)(g), for which water quality standards have been adopted other than carcinogenic, bioconcentrating, or toxic parameters, in either surface or ground water, if the changes outside of a mixing zone designated by the department are less than ten percent of the applicable standard and the existing water quality level is less than 40 percent of the standard;

(g) for nutrients in domestic sewage effluent discharged from a wastewater treatment~~septic~~ system that does not require an MPDES or MGWPCS permit, except as specified in (1)(d) and (e), which will not cause changes that ~~equal or~~ exceed the trigger values in Department Circular DEQ-7. ~~Whenever the change exceeds the trigger value, the change~~

~~is not significant if the changes outside of a mixing zone designated by the department are less than ten percent of the applicable standard and the existing water quality level is less than 40 percent of the standard; This requirement applies to wastewater treatment system effluent that is hydrologically connected to high-quality state surface waters that might be impacted, the bottom of the absorption trench is a higher elevation than the high-quality state surface water, and meet one of the following criteria:~~

~~(i) The distance between any portion of the absorption system and ordinary high-water mark of the impacted high-quality state surface water is ¼ mile or less; or~~

~~(ii) The distance between any portion of the absorption system and ordinary high-water mark of the impacted high-quality state surface water is greater than ¼ mile and less than ½ mile, and:~~

~~(A) any of the absorption system soil profiles required by Department Circular DEQ-4 has a limiting layer less than 8 feet below the natural ground surface;~~

~~(B) the absorption system soil application rate pursuant to Department Circular DEQ-4 is 0.5 gallons per day per square foot (gpd/ft²) or larger; or~~

~~(C) the absorption system soil application rate pursuant to Department Circular DEQ-4 is less than 0.5 gpd/ft² and the soil classification modifier is extremely cobbly, extremely stony, or extremely bouldery.~~

~~The distance in (i) and (ii) includes the five-degree expansion of the effluent plume as described for ground water mixing zones (ARM 17.30.517(1)(d)(iii)(B)). The distance is based on the measured groundwater flow direction between the absorption system and the ordinary high-water mark of the impacted surface water, or the shortest distance between the absorption system and the ordinary high-water mark of the impacted surface water when the groundwater flow direction is estimated from topography or other method; and~~

~~(h) changes in the quality of water for any parameter for which there are only narrative water quality standards if the changes will not have a measurable effect on any existing or anticipated use or cause measurable changes in aquatic life or ecological integrity.~~

(2) Notwithstanding compliance with the criteria of (1), the department may determine that the change in water quality resulting from an activity which meets the criteria in (1) is degradation based upon the following:

(a) cumulative impacts or synergistic effects;

(b) secondary byproducts of decomposition or chemical transformation;

(c) substantive information derived from public input;

(d) changes in flow;

(e) changes in the loading of parameters;

(f) new information regarding the effects of a parameter; or

(g) any other information deemed relevant by the department and that relates to the criteria in (1).

(3) The department may determine that a change in water quality resulting from an activity or category of activities is nonsignificant based on information submitted by an applicant that demonstrates conformance with the guidance found in 75-5-301(5)(c), MCA. In making a determination under this subsection, the department shall allow for public comment prior to a decision pursuant to the public notice procedures in ARM 17.30.1372.

(4) The analysis of surface water impacts required in (1)(g) shall use the waste load (as described in ARM 17.30.517(1)(d)(vii)(B)) discharged from the absorption system except when:

(a) the waste load can be reduced pursuant to ARM 17.30.517(1)(d)(vi); or

(b) a saturated zone solute transport or saturated zone particle tracking model is used to demonstrate that the waste load impacting the high-quality state water should be reduced. The model shall include site-specific data characterizing the necessary hydrogeologic properties of the water-bearing units in the effluent flow path and calibrated to site-specific data.

(5) Pursuant to 75-5-301(5)(e), MCA, the requirements of (2) do not apply to wastewater treatment system discharges that are not subject to ground water permitting requirements under 75-5-401, MCA.

(46) If a court of competent jurisdiction declares 75-5-313, MCA, or any portion of that statute invalid, or if the United States Environmental Protection Agency disapproves 75-5-313, MCA, or any portion of that statute under 30 CFR 131.21, or if rules adopted pursuant to 75-5-313(6) or (7), MCA, expire and general variances are not available, then the significance criteria contained in (1)(g) are the significance criteria for total nitrogen and total phosphorus in surface water.

(History: 75-5-301, 75-5-303, MCA; IMP, 75-5-303, MCA; NEW, 1994 MAR p. 2136, Eff. 8/12/94; AMD, 1995 MAR p. 1040, Eff. 6/16/95; AMD, 1995 MAR p. 2256, Eff. 10/27/95; TRANS, from DHES, 1996 MAR p. 1499; AMD, 2002 MAR p. 387, Eff. 2/15/02; AMD, 2003 MAR p. 217, Eff. 2/14/03; AMD, 2004 MAR p. 725, Eff. 4/9/04; AMD, 2006 MAR p. 528, Eff. 2/24/06; AMD, 2014 MAR p. 1815, Eff. 8/8/14; AMD, 2017 MAR p. 602, Eff. 5/13/17.)

17.30.716 CATEGORIES OF SUBSURFACE WASTEWATER TREATMENT SYSTEMS (SWTS) ACTIVITIES THAT CAUSE NONSIGNIFICANT CHANGES IN WATER QUALITY

(1) In addition to the activities listed in 75-5-317, MCA, the categories or classes of activities that are identified in this rule have been determined by the department to cause changes in water quality that are nonsignificant due to their low potential for harm to human health or the environment and their conformance with the guidance found in 75-5-301, MCA.

(2) ~~Except as provided in (75), a~~ subsurface wastewater treatment system (SWTS) that ~~does not require an MPDES or MGWPCS permit and~~ meets ~~all of~~ the criteria in ~~(3)(2)(a)~~ and ~~(4) falls within one of the categories in (2)(b)~~ is nonsignificant degradation.

(3a) The SWTS, including primary and replacement absorption systems, drainfields must meet ~~all of~~ the following criteria:

(a) the ~~drainfield~~absorption system must be ~~500~~1,000 feet or more (~~200~~400 feet or more for lots that meet the criteria in ~~(4)(b)(2)(b)(iv)~~) from ~~the nearest downgradient any hydrologically connected~~ high-quality state surface water that might be impacted. Distance between the absorption system and hydrologically connected high-quality state surface water is based on the criteria in ARM 17.30.715(1)(g); This distance may be reduced by 50% (to 500 and 200 feet, respectively) if the drainfield is pressure-dosed

~~(ii) if the drainfield is not pressure-dosed:~~

~~(A) the soil percolation rate must be between 16 and 50 minutes per inch, if a percolation test has been conducted for the drainfield; and~~

~~(B) the natural soil beneath the absorption trench must contain at least six feet of very fine sand, sandy clay loam, clay loam, or silty clay loam;~~

~~(biii) the SWTSs on the lot shall have a combined design flow of 600 gallons per day or less, or a combined design flow of 800 gallons per day or less if all the SWTS on the lot are level 2, level 3 or level 4 treatment systems; the SWTS must serve no more than two single-family residences, or must serve a facility that produces non-residential, non-industrial wastewater with a wastewater design flow of 700 gallons per day or less;~~

~~(c) the wastewater discharged must be residential strength;~~

~~(iv) there must be only one SWTS receiving wastewater from the lot;~~

~~(dv) the SWTS must be located entirely on the lot where wastewater is produced;~~

~~(evi) the SWTS must meet the current design standards defined in ARM Title 17, chapter 36, subchapters 3 and 9, and department Circular DEQ-4; and~~

~~(f) all SWTS on the lot must meet the requirements in this rule.~~

~~(vii) for lots smaller than 20 acres, and for lots 20 acres and larger on which the drainfield is 500 feet or less from the downgradient property boundary, the background nitrate (as N) concentration in the shallowest ground water must be less than two mg/L.~~

~~(A) The department may require multiple ground water samples over a specified time period to determine whether seasonal variation of ground water nitrate concentrations may affect compliance with this requirement.~~

~~(4b) A SWTS that meets the requirements in (3) must also meet:~~

~~(a) all the requirements in one of the categories in Table 1; or~~

~~(b) the following requirements:~~

~~(iv) for category four:~~

~~(iA) the SWTS is in a county where the total number of subdivision lots that were reviewed pursuant to 76-4-101 et seq., MCA, and were created in thata county during the previous 10 state fiscal years is fewer than 150; and~~

~~(iiB) the lot is not within one mile of the city limits of an incorporated city or town with a population greater than 500 as determined by the most recent census; or~~

~~(b) The SWTS must fall within one of the following five categories:~~

~~(i) for category one:~~

~~(A) the lot size is two acres or larger;~~

~~(B) the percolation rate is 16 minutes per inch or slower, if a percolation test has been conducted for the drainfield;~~

~~(C) the natural soil beneath the absorption trench contains at least six feet of very fine sand, sandy clay loam, or finer soil; and~~

~~(D) the depth to bedrock and seasonally high ground water is eight feet or greater;~~

~~(ii) for category two:~~

~~(A) the drainfield is pressure dosed;~~

~~(B) the lot size is two acres or larger;~~

~~(C) the percolation rate is six minutes per inch or slower, if a percolation test has been conducted for the drainfield;~~

~~(D) the natural soil beneath the absorption trench contains at least six feet of medium sand, sandy loam, or finer soil; and~~

~~(E) the depth to bedrock and seasonally high ground water is 12 feet or greater;~~

~~(iii) for category three:~~

~~(A) the drainfield is pressure dosed;~~

~~(B) the lot size is one acre or larger;~~

~~(C) the subdivision consists of five lots or fewer;~~

~~(D) there is no existing or approved SWTS within 500 feet of the subdivision boundaries;~~

~~(E) the percolation rate is six minutes per inch or slower, if a percolation test has been conducted for the drainfield;~~

~~(F) the natural soil beneath the absorption trench contains at least six feet of medium sand, sandy loam, or finer soil; and~~

~~(G) the depth to bedrock and ground water is 100 feet or greater~~

~~(v) for category five:~~

~~(A) the SWTS is a level II system;~~

~~(B) the lot size is two acres or larger;~~

~~(C) the bottom of the drainfield absorption trenches is not more than 18 inches below ground surface; and~~

~~(D) the depth to limiting layer (based on test pit data) is greater than six feet below ground surface.~~

The above categories one, two, three and five are still included in the rule but have been moved into TABLE 1 of the rule. TABLE 1 is in a separate Excel file for easier reading/editing. The final rule will have TABLE 1 incorporated directly into this rule.

~~(5)3) A mixing zone is not required for SWTSs that meet the criteria in this rule. However, SWTS drainfields must be located so that there is a 100-foot setback between existing and approved water supply wells and the boundaries of a 100-foot mixing zone that is provisionally designated for purposes of applying this setback. A 100-foot provisional mixing zone is required for each SWTS that meets the requirements in (3) and (4). Source specific mixing zones are not allowed. All applicable setbacks and siting requirements in~~

rule and law apply to the provisional mixing zone, however the requirements of ARM 17.30.715(1)(d) are not applicable.

~~(5) Notwithstanding an activity's designation as nonsignificant degradation in this rule, the department may review the activity for significance under the criteria in ARM 17.30.715(1) based upon the following:~~

- ~~(a) cumulative impacts or synergistic effects;~~
- ~~(b) secondary byproducts of decomposition or chemical transformation;~~
- ~~(c) substantive information derived from public input;~~
- ~~(d) changes in flow;~~
- ~~(e) changes in the loading of parameters;~~
- ~~(f) new information regarding the effects of a parameter; or~~
- ~~(g) any other information deemed relevant by the department and that relates to the criteria in ARM 17.30.715(1).~~

~~(6)4~~ The department may require that on-site information be provided to verify any of the criteria required in this rule.

~~(7)6~~ The department may determine that the categorical exclusion in (2) does not apply to lots within a specific geographic area. This determination must be based upon information submitted in a petition demonstrating that the categorical exclusions should not apply within that area.

(a) A petition submitted under this rule may be considered only if it is submitted by a local governing body, a local department or board of health, a local water quality district, or by either 10% or 20, whichever is fewer, of the landowners (or persons with a contract interest in land) within the affected geographic area.

(b) A petition submitted under this rule must contain the following information:

(i) a legal description of the petition area, which is the geographic area within which the categorical exclusions would not apply;

(ii) a detailed description of the soils, geology, and hydrogeology of the area described in (6)(b)(i);

(iii) a current listing from a title insurance company of the names and addresses of all persons who either own or have a contract interest in land within the petition area; and

(iv) data from ground water samples taken from wells that withdraw water from the uppermost aquifer underlying the petition area or from wells that withdraw water from the uppermost aquifer underlying an area within the same or adjacent county with similar climate, soil, geologic, and hydrogeologic conditions and a density of individual sewage systems similar to that allowed in (2)(b). The ground water data must demonstrate that one of the following conditions is met:

(A) nitrate as nitrogen concentrations exceed 5.0 mg/L in ground water samples from more than 25% of at least 30 wells that are not located within a standard mixing zone, as defined in ARM 17.30.517(1)(d)(ixviii), for a ~~wastewater treatment~~septic system; or

(B) data from ground water samples collected at least three years apart from the same 15 wells indicate a statistically significant increase of greater than 1.0 mg/L in nitrate as nitrogen concentrations in the uppermost aquifer.

(c) Within 90 days after receipt of the information required in (6)(b), the department shall issue a preliminary decision as to whether the petitioner has satisfied the requirements in (6)(b), and describe the reasons for either granting or denying the petition. The preliminary decision must be mailed to the petitioner and to all landowners or persons with a contract interest in land within the petition area and must include the following information:

(i) a description of the petition area;

(ii) a summary of the basis for the preliminary decision including any modifications to the boundaries of the petition area;

(iii) a description of the procedures for public participation and of the opportunity to comment prior to the department's final decision on the petition;

(iv) the ending dates of the comment period and the address where comments will be received;

(v) procedures for requesting a hearing; and

(vi) the name, e-mail address, and telephone number of a person to contact for additional information.

(d) Within 60 days after the close of the public comment period, the department shall issue a final decision and provide written notice of its decision to the petitioner and to each person who submitted written comments. The final decision must set forth the department's reasons for granting or denying the petition and must include a response to all substantive comments received by the department during the public comment period or during any hearing.

(History: 75-5-301, 75-5-303, MCA; IMP, 75-5-303, 75-5-317, MCA; NEW, 1994 MAR p. 2136, Eff. 8/12/94; TRANS, from DHES, 1996 MAR p. 1499; AMD, 1997 MAR p. 2071, Eff. 11/18/97; AMD, 1998 MAR p. 936, Eff. 4/17/98; AMD, 2003 MAR p. 2274, Eff. 10/17/03; AMD, 2004 MAR p. 2579, Eff. 10/22/04; AMD, 2006 MAR p. 528, Eff. 2/24/06.)

Draft Table 1 for ARM 17.30.716

Additions underlined in red. Deletions have strikethrough in red.

SHADED CELLS HIGHLIGHT THE APPLICABLE REQUIREMENTS OF EACH CAT EXEMPTION

GRAY TEXT PROVIDES SUMMARY OF EACH CATEGORY AND NOT PART OF THE RULE

REQUIREMENT	CATEGORY ⁽¹⁾									
	Category 1	Category 2	Category 3	Category 4		Category 5	Category 6	Category 7	Category 8	Category 9
	category 1- based on soil type and limiting layer	category 2- based on soil type and limiting layer	category 3 for 1 acre lots based on soil type, deep limiting layer, and distance to other SWTSs.	category 5 for level 2, 3 and 4.	Category for low growth counties remains in rule (section (4)(b))	Category for 1 acre lots - only for level 2, 3 and 4 SWTS	Category for new levels 3 and 4 (allows elevated background nitrate)	Category for level 4 (no limit on background nitrate)	Category for gray water and waste segregation system	Category for >20 acre lots. Allows elevated or no background nitrate limit
Minimum lot size (acres)	2	2	1	2		1	2	2	2	20
Maximum number of lots in <u>related developments / phases of a</u> subdivision	N/A	N/A	5	N/A		5	N/A	N/A	N/A	N/A
Background ground water nitrate (as N) concentration (mg/L) ⁽²⁾	2	2	2	2		2	3	N/A	2	5 or N/A ⁽³⁾
Pressure distribution required for the absorption system	<u>Yes</u>	Yes	Yes	<u>Yes</u>		<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	N/A
Soil profile has at least 6 feet of natural soil below adsorption system that is <u>fine sandy loam, loam, very fine sand, sandy clay loam, silt loam</u> or finer ⁽⁴⁾	Yes	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
Soil profile has at least 6 feet of natural soil below adsorption system that is medium sand, sandy loam, or finer ⁽⁴⁾	N/A	Yes	Yes	N/A		Yes	Yes	Yes	Yes	N/A
<u>Soil profile has at least 6 feet of natural soil below adsorption system that is medium sand, sandy loam, or finer ⁽⁴⁾, or discharge is to an elevated sand mound</u>	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	Yes
Minimum depth <u>below ground surface to bedrock or seasonally high ground water limiting layer</u> in soil profile (ft) ⁽⁴⁾	8	<u>12 10</u>	<u>N/A 10</u>	6		8	8	8	N/A	N/A
Minimum depth <u>below ground surface</u> to bedrock and groundwater (ft) ⁽⁵⁾	N/A	N/A	<u>50 100</u>	N/A		N/A	N/A	N/A	N/A	N/A
Minimum distance from proposed subdivision boundary to any existing or approved SWTS outside the subdivision boundaries (ft)	N/A	N/A	<u>200 500</u>	N/A		N/A	N/A	N/A	N/A	N/A
Level 2 SWTS	N/A	N/A	N/A	Yes		Yes	N/A	N/A	N/A	N/A
<u>Level 3 SWTS</u>	N/A	N/A	N/A	Yes		Yes	Yes	N/A	N/A	N/A
<u>Level 4 SWTS</u>	N/A	N/A	N/A	Yes		Yes	Yes	Yes	N/A	N/A
Maximum depth of absorption system below natural land surface (inches) ⁽⁶⁾	24	24	24	18		18	18	18	24	24
Gray water in waste segregation systems ⁽⁷⁾	N/A	N/A	N/A	N/A		N/A	N/A	N/A	Yes	N/A

NOTES:
 (1) "Yes" indicates the requirement must be met for that category; "N/A" indicates the requirement is not applicable for that category.
 (2) The department may require multiple ground water samples over a specified time period to determine whether seasonal variation of ground water nitrate concentrations may affect compliance with this requirement.
 (3) The nitrate (as N) concentration limit of 5 mg/L does not apply to lots 20 acres or larger if the absorption system is greater than 500 feet from the downgradient property boundary.
 (4) Soil profiles shall be conducted in accordance with site evaluation requirements in department Circular DEQ-4. Soils that contain 60% or more of a rock fragment (gravel, cobble, stone or boulder) and are considered extremely gravelly, extremely cobbly, extremely stoney or extremely bouldery will not meet this requirement. All soil profiles for an SWTS absorption system must meet these soil requirements. The six feet thickness of the specified soil type may be a continuous soil layer or a combination of multiple layers.
 (5) Depth below ground surface to limiting layer can be determined using local well logs or other applicable information as approved by the reviewing authority.
 (6) For depths shallower than 24 inches the drainfield shall be protected from freezing using a weep-hole or other method as approved by the reviewing authority.
 (7) Category only applies to the greywater discharge, not the blackwater discharge.

17.30.718 CRITERIA FOR NUTRIENT REDUCTION FROM SUBSURFACE WASTEWATER TREATMENT SYSTEM (SWTS)

(1) This rule describes the information that must be submitted to obtain a department classification of a SWTS as ~~level 1a, level 1b, or level 2, level 3, or level 4 treatment~~, as those terms are defined in ARM 17.30.702. The nitrogen treatment ~~level efficiency~~ that a SWTS is granted under this rule may be used as the effluent concentration in mixing zone calculations.

(2) A person seeking classification of a SWTS as ~~level 1a, level 1b, or level 2, level 3, or level 4 treatment~~ must submit the following background information to the department regarding the SWTS; in addition to any other information the department determines is necessary to verify the long-term treatment capabilities of the system:

(a) a description of the technology utilized by the system and the system components;

(b) engineering details regarding component sizes and materials specifications. Components include, but are not limited to, tanks, pumps, piping, control panels, and treatment media;

(c) operation and maintenance requirements;

(d) a description of the long-term reliability of the system components;

(e) a description of the installation process; and

(f) information verifying the reliability of the SWTS manufacturer and vendor. At a minimum, the vendor or manufacturer must either:

(i) have maintained an office in Montana for the past five years with a significant portion of its business related to design, construction, or installation of SWTSs; or

(ii) demonstrate an equivalent level of experience and reliability in Montana.

(3) A person seeking classification of a SWTS as ~~level 1a, level 1b, or level 2, level 3, or level 4 treatment~~ must submit monitoring information as provided in this section. The department may require additional information (particularly for technologies not included in department Circular DEQ-4) if necessary to verify the long-term reliable treatment capabilities of the system.

(a) The following background information must be submitted for each system monitored:

(i) system address (including legal description);

(ii) system start-up date;

(iii) description of current and historical system use, particularly during the performance monitoring period; and

(iv) monitoring data collected prior to and after the required performance monitoring period.

(b) for approval as a level 2 or level 3 SWTS:

(i) For a SWTS that uses the effluent total nitrogen concentration to determine treatment efficiency; the monitoring must be from at least six systems; or

(ii) For a SWTS that uses the percent total nitrogen removed from measured raw wastewatersewage to determine treatment efficiency; the monitoring must be from at least three systems.

(c) for approval as a level 4 SWTS:

(i) for a SWTS that uses the effluent total nitrogen concentration to determine treatment efficiency the monitoring must be from at least 12 systems; or

(ii) for a SWTS that uses the percent total nitrogen removed from measured raw wastewater to determine treatment efficiency the monitoring must be from at least six systems.

(de) For each SWTS that is monitored, at least one representative sample of raw ~~wastewater~~ sewage must be collected and analyzed for nitrate (as N), nitrite (as N), ammonia (as N), total kjeldahl nitrogen (TKN) (as N), biological oxygen demand (BOD), and total suspended solids (TSS). This information will be used to determine the raw ~~wastewater~~ sewage strength, which must not exceed residential strength and have an average TKN or total nitrogen concentration higher than 40 mg/L. Chemical characterization of raw ~~wastewater~~ sewage must be based on one of the following representative samples:

(i) if the septic tank or other initial tank is used only for primary treatment of the sewage, the sample should be collected from that tank;

(ii) if the septic tank or other initial tank is used for treatment beyond primary treatment, the sample should be collected prior to start-up of the SWTS from that tank; or

(iii) another department-approved location.

(ed) For approval as a level 2 or level 3 SWTS e~~Each~~ SWTS must be monitored for one year. a~~At least one SWTS must be monitored for at least two years. For approval as a level 4 SWTS each SWTS must be monitored for one year, at least two SWTS must be monitored for at least two years.~~

(fe) Effluent S~~s~~ampling frequency must be at least monthly (or equivalent frequency as approved by the department) during the winter months (November through April), and at least quarterly during the summer months (May through October). At least 50% of the monitoring data from each SWTS must be collected during the winter months. For SWTS that use percent total nitrogen removed to determine treatment efficiency a raw wastewater sample must be collected on the same dates as the effluent samples.

(gf) Each effluent sample must be analyzed for nitrate (as N), nitrite (as N), ammonia (as N), TKN (as N), BOD, TSS, and flow. If raw wastewater influent monitoring is conducted concurrently with effluent monitoring, each ~~influent~~ sample must be analyzed for TKN (as N) or total nitrogen. If the SWTS is experiencing significant infiltration and inflow, the department may require that raw wastewater influent samples be collected and analyzed during each effluent monitoring event to determine an accurate representation of the nitrogen-reducing capabilities of the system.

(hg) Monitored SWTSs must be in Montana or ~~located in a climate similar to Montana. the location must have an average annual temperature of 50 degrees fahrenheit or less that is based on the most applicable active weather station with at least a 20-year record or the most recent 30-year National Oceanic and Atmospheric Administration average annual temperature.~~

(ih) The arithmetic mean of the available data will be used to determine compliance with this rule.

(ij) All water analyses, except for temperature, must be conducted according to an EPA-approved method by an independent laboratory. Temperature measurements must be conducted on-site. and

(kj) The department may waive specific requirements in this rule if:

~~(i) the monitoring data are substantially equivalent to those requirements. or~~

~~(ii) the SWTS uses a proven nutrient reduction technology listed in DEQ-4 with proprietary variations.~~

(4) The results data from a SWTS that is tested under the NSF International / American National Standards Institute (NSF/ANSI) 245 certification ~~EPA/National Science Foundation (NSF) environmental technology verification (ETV) program~~ may be used to

demonstrate compliance with the requirements in (3), except that NSF 245 data may only be used to replace one-third of the systems required in (3)(b) or (c).

(5) In response to a request for classification of a SWTS as ~~level 1a, level 1b, or level 2,~~ level 3, or level 4 treatment, the department may, after evaluating the SWTS under the criteria in this rule:

- (a) approve the request;
- (b) approve the request with modifications or conditions;
- (c) deny the request; or
- (d) deny the request pending submittal of additional information.

(6) If a SWTS that is classified as ~~level 1a, level 1b, or level 2,~~ level 3, or level 4 is modified, and the modification could potentially have negative effects on the amount of total nitrogen reduction, the department may require that the SWTS be re-evaluated under the criteria in this rule.

(7) If subsequent data indicate that a SWTS classified as level 2, level 3 or level 4 treatment under this rule is not reliable or cannot meet required nutrient reductions, the department may rescind the classification.

(8) All SWTSs classified as ~~a level 1a, level 1b, or level 2,~~ level 3, or level 4 treatment must have an operation and maintenance (O&M) contract in perpetuity for each system installed. The O&M contract will be required in the subdivision approval, or as a deed restriction if a subdivision plat approval is not required for the property. O&M must be conducted by the system manufacturer, an approved vendor, or other qualified personnel. The SWTS vendor or manufacturer must offer an O&M plan that meets the requirements of this section and the requirements in department Circular DEQ-4. At a minimum, the O&M contract must include:

(a) an on-site inspection of all the major components of the SWTS according to the following schedules:

(i) for SWTS with a design flow less than 5,000 gpd, twice a year semi-annually for the first two years after use of the system begins, and annually thereafter;

(ii) inspections of for suspended growth SWTS with a design flow less than 5,000 gpd, quarterly for the first two years after use of the system begins and semi-annually thereafter; and systems must be twice as frequent.

(iii) for SWTS with a design flow of 5,000 gpd or larger that does not require an MPDES or MGWPCS permit, monthly for the first two years after use of the system begins and quarterly thereafter.

(b) Inspection items must include verifying proper operation of the visual/audible alarm system required in (9) and determining whether any water treatment devices have been added, modified, or removed from the water system that discharges to the SWTS; and

(c) annual effluent sampling and analysis for nitrate (as N), nitrite (as N), ammonia (as N), TKN (as N), BOD, TSS, fecal coliform, specific conductance, carbonaceous biochemical oxygen demand (CBOD), field pH, and field temperature. Effluent sampling must be conducted after all treatment is complete, but before discharge to the absorption system area; and

(d) All monitoring data collected required in (c), including the SWTS manufacturer, from a type of SWTS must be submitted to the department if requested may be requested by the department to verify the total nitrogen reduction is adequate for the approved treatment level. if the department has reason to believe that a type of SWTS that has been approved as a nutrient-reducing system is not meeting the required treatment efficiencies.

(9) All SWTSs classified as ~~level 1a, level 1b, or level 2,~~ level 3, or level 4 treatment must have the following features:

(a) a visual and/or audible alarm warning that indicates if a hydraulic malfunction is occurring in any portion of the treatment system prior to the absorption system; and

(b) a physical barrier that prevents the discharge of wastewater to the absorption system if a hydraulic malfunction is occurring in any portion of the treatment system prior to the absorption system.

(10) Any SWTS that has been previously approved for level 2 treatment is also approved as level 3 or level 4 treatment if the original level 2 approval includes a total nitrogen concentration or reduction percentage that meets the definition of level 3 or level 4 treatment in ARM 17.30.702.

(11) All level 2, level 3 or level 4 treatment systems, regardless of approval date under this rule, must comply with the operation and maintenance requirements in (8),

(12) Any SWTS approved as level 2, level 3 or level 4 must also be reviewed and approved under Department Circular DEQ-4 (2023) before it can be approved for a specific project.

(History: 75-5-301, 75-5-303, MCA; IMP, 75-5-303, MCA; NEW, 2004 MAR p. 1384, Eff. 6/18/04.)