



ADMINISTRATIVE RULES OF MONTANA



17.24.639 SEDIMENTATION PONDS AND OTHER TREATMENT FACILITIES

- (1) Sedimentation ponds, either temporary or permanent, may be used individually or in series and must:
 - (a) be constructed before any disturbance of an area that will drain into the pond takes place;
 - (b) be located as near as possible to the disturbed area, and out of major stream courses, unless another site is approved by the department;
 - (c) provide an adequate sediment storage volume equal to:
 - (i) the accumulated sediment volume from the drainage area to the pond for a minimum of three years as determined by a method approved by the department; or
 - (ii) not less than 0.02 acre-foot for each acre of disturbed area, excluding well-established reclamation, within the upstream drainage area, unless the operator affirmatively demonstrates that the sediment volume from any site-specific area would be less. A greater sediment volume may be required if necessary to contain a higher sediment yield; and, as applicable,
 - (iii) the accumulated sediment volume necessary to retain sediment for one year in any discharge from an underground mine passing through the pond;
 - (d) be accurately surveyed immediately after construction in order to provide a baseline for future sediment volume measurements; and
 - (e) be constructed as approved unless modified under ARM 17.24.642(7).
- (2) Sedimentation ponds must provide the required theoretical detention time adequate to meet effluent limitations described in ARM 17.24.633 and for the water inflow or runoff entering the pond from a 10-year, 24-hour precipitation event (design event), plus the average inflow from the underground mine if applicable. "Theoretical detention time" is the average time that the design flow is detained in the pond and is further defined as the time difference between the centroid of the inflow hydrograph and the centroid of the outflow hydrograph for the design event. Runoff diverted under ARM 17.24.635 through 17.24.637 away from the disturbed drainage areas and not passed through the sedimentation pond need not be considered in sedimentation pond design. In determining the runoff volume, the characteristics of the mine site, reclamation procedures, and on site sediment control practices shall be considered. Sedimentation ponds must provide a theoretical detention time of not less than 24 hours, or any higher amount required by the department.
- (3) The water storage resulting from inflow must be removed by a nonclogging dewatering device or a conduit spillway approved by the department and must have a discharge rate to achieve and

maintain the required theoretical detention time. The inlet to the dewatering device must not be located at a lower elevation than the maximum elevation of the sediment storage volume.

- (4) Each operator shall design, construct, and maintain sedimentation ponds to prevent short-circuiting to the extent possible.
- (5) There must not be outflow through the emergency spillway during the passage of the runoff resulting from the ten-year, 24-hour precipitation event or lesser events through the sedimentation pond.
- (6) Sediment must be removed from sedimentation ponds when the volume of sediment accumulates to 60 percent of the design sediment storage volume. With the approval of the department, additional storage may be provided for sediment and water above the total design requirement. If additional storage is provided and the design runoff storage and theoretical detention time are maintained, sediment removal may be delayed until 40 percent of the required sediment storage remains.
- (7) Sedimentation ponds having embankments must be constructed to provide:
 - (a) a combination of principal and emergency spillways or a single spillway only to safely discharge the runoff from a 25-year, 24-hour precipitation event, or larger event specified by the department, assuming the impoundment is at full pool for spillway design. A single spillway must be constructed of non-erodible materials and designed to carry sustained flows, or be earth- or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected. The elevation of the crest of the emergency spillway must be a minimum of one foot above the crest of the principal spillway. Emergency spillway grades and allowable velocities must be approved by the department;
 - (b) containment of runoff from a 25-year, 24-hour precipitation event, or greater event as specified by the department, with no spillway required, provided that the impounding structure does not meet any of the criteria of 30 CFR 77.216(a) or the Class B or C criteria for dams in USDA soil conservation service Technical Release No. 60 (210-VI-TR60, October 1985, as revised through January 1991), "Earth Dams and Reservoirs", (TR-60), and provided further that adequate provisions are made for safe dewatering of the pond within an appropriate time after the design precipitation event occurs, using current, prudent engineering practices; or
 - (c) for ponds meeting any of the criteria of 30 CFR 77.216(a) or the Class B or C criteria for dams in TR-60, containment of runoff from the probable maximum precipitation of a six-hour event, or greater event as specified by the department, with no spillway required, provided that adequate provisions are made for safe dewatering of the pond within an appropriate time after the design precipitation event occurs, using current, prudent engineering practices.
- (8) Foundations and abutments for sediment ponds must be stable during all phases of construction and operation and must be designed based on appropriate and adequate information on foundation conditions that is collected pursuant to ARM 17.24.315(1)(b) or (d), as appropriate.
- (9) The minimum elevation at the top of the settled embankment must be one foot above the water surface in the pond with the emergency spillway flowing at design depth.

- (10) Unless otherwise approved by the department as adequate to maintain stability, the minimum top width of the embankment must not be less than the quotient of $(H+35)/5$, where H is the height, in feet, of the embankment as measured from the upstream toe of the embankment.
- (11) The side slopes of the settled embankment must not be steeper than 3h:1v upstream and 2h:1v downstream, unless otherwise approved by the department.
- (12) After soil is salvaged from the embankment foundation area pursuant to ARM 17.24.701 through 17.24.703, all other organic material must be removed and all surfaces sloped to no steeper than 1v:1h.
- (13) Where an embankment is to be placed on side slopes exceeding 1v:5h (11.3°), the existing ground must be scarified, stepped, or, if in bedrock, keyed in a manner which increases the stability of the fill.
- (14) Embankment material must not contain organic matter, wet or frozen materials, coaly or carbonaceous materials, or any other material considered unsuitable by the department for use in embankment construction.
- (15) The placing and spreading of embankment material must be started at the lowest point of the foundation. The embankment must be brought up in horizontal layers of such thickness as is required to facilitate compaction and meet the design requirements of this rule. A lift must not be placed on the previous layer until the density as specified in the design approved by the department has been achieved throughout the previous layer.
 - (a) In selecting the method to be used for placing embankment material, consideration must be given in the design to such factors as the foundation, geological structure, soils, static water level, high water level, type of construction, and equipment to be used.
 - (b) AASHTO or other comparable specifications approved by the department for the determination of the maximum dry density for granular materials must be applied during construction.
- (16) Embankments must have a minimum seismic safety factor of 1.2 and a minimum static safety factor of 1.5 under any condition of loading likely to occur, or such higher factor as the department determines to be reasonably necessary for safety, protection of property, or preventing environmental harm.
- (17) All pond embankments must be designed and constructed in accordance with sound engineering and construction practices and certified by a licensed professional engineer experienced in the design of such structures.
- (18) Temporary erosion-control measures must be utilized as necessary during construction to control sedimentation and minimize erosion until long-term erosion-control measures can be established.
- (19) The entire embankment, including the surrounding areas disturbed by construction, must be stabilized with a vegetative cover or other means immediately after the embankment is completed in order to protect against erosion and sudden drawdown. The active upstream face of the embankment where water will be impounded may be riprapped or otherwise stabilized. Areas in which the vegetation is not successful or where rills and gullies develop must be repaired and revegetated in accordance with ARM 17.24.711, 17.24.713, 17.24.714, 17.24.716 through 17.24.718, 17.24.721, 17.24.723 through 17.24.726, and 17.24.731.

- (20) If a sedimentation pond meets any of the criteria of 30 CFR 77.216(a), the following additional requirements must be met:
- (a) an appropriate combination of principal and emergency spillways that will discharge safely the runoff resulting from a 100-year, six-hour precipitation event, or a larger event specified by the department, assuming the impoundment is at full pool for spillway design, must be provided;
 - (b) appropriate barriers must be provided to control seepage along conduits that extend through the embankment; and
 - (c) the criteria of the mine safety and health administration as published in 30 CFR 77.216 and ARM 17.24.315 must be met.
- (21) If a sedimentation pond meets the Class B or C criteria for dams in TR-60, it must comply with the following additional requirements:
- (a) for freeboard, the freeboard hydrograph criteria listed in the "Minimum Emergency Spillway Hydrologic Criteria" table in TR-60; and
 - (b) for safely discharging the design precipitation event, the emergency spillway hydrograph criteria in the "Minimum Emergency Spillway Hydrologic Criteria" table in TR-60, or greater event as specified by the department.
- (22) All ponds with embankments must be designed and inspected regularly during construction under the supervision of, and certified after construction by, a qualified licensed professional engineer experienced in the construction of impoundments. After construction, inspections and certifications must be made and reports filed with the department, pursuant to ARM 17.24.642(4). Inspection and certification reports must be submitted until the embankments are removed.
- (a) For ponds designed and constructed pursuant to ARM 17.24.639(7)(b) or (c), the certification must also indicate that safe dewatering of the pond will occur within an appropriate time after the design precipitation event occurs, using current, prudent engineering practices.
- (23) All ponds with embankments must be examined for structural weakness, erosion, and other hazardous conditions, and reports and modifications must be made to the department, in accordance with 30 CFR 77.216-3. With the approval of the department, dams not meeting the criteria of 30 CFR 77.216(a) or the Class B or C criteria for dams in TR-60 must be examined at least four times per year. If an examination or inspection discloses that a potential hazard exists, the person who examined the impoundment must promptly inform the department of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the department must be notified immediately. The department shall then notify the appropriate agencies that other emergency procedures are required to protect the public.
- (24) Sedimentation ponds and other treatment facilities must not be removed:
- (a) sooner than two years after the last augmented seeding within the drainage, unless otherwise approved by the department in compliance with ARM 17.24.633;
 - (b) until the drainage entering the pond has met the applicable state and federal water quality requirements for the receiving stream; and
 - (c) until evidence is provided that demonstrates that the drainage basin has stabilized to the extent that it was in the undisturbed state.

- (25) When the sedimentation pond is removed, the affected land must be regraded and revegetated in accordance with ARM 17.24.711, 17.24.713, 17.24.714, 17.24.716 through 17.24.718, 17.24.721, 17.24.723 through 17.24.726, and 17.24.731. If the department approves retention, the sedimentation pond must meet all the requirements for permanent impoundments of ARM 17.24.642 and 17.24.650.
- (26) Other treatment facilities must be designed to treat the 10-year, 24-hour precipitation event unless a lesser design event is approved by the department based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations of
 - (a) Other treatment facilities must be designed in accordance with the applicable requirements of (1) through (21).
- (27) Runoff from areas above a structure impounding coal waste or runoff from the surface of the facility and that may cause instability or erosion of the impounding structure must be diverted into stabilized diversion channels designed to meet the requirements of ARM 17.24.635 and 17.24.637 and designed to safely pass the runoff from a 100-year, six-hour design-precipitation event.
- (28) Excavations which are sediment control structures during or after the mining operation must have perimeter slopes that are stable. Where surface runoff enters the impoundment area, the sideslope must be protected against erosion. An excavated sediment pond requires no spillway and must be able to contain the ten-year, 24-hour precipitation event, and conform with (1), (2), (4), (6), (18), (22)(a), (24) and (27).
 - (a) These excavations which are sediment control structures must be certified initially by a qualified licensed professional engineer. The department shall perform subsequent inspections. If any modifications are necessary, the department shall promptly notify the operator.

Authorizing statute(s): 82-4-205, MCA

Implementing statute(s): 82-4-231, MCA

History: NEW, 1980 MAR p. 725, Eff. 4/1/80; AMD, 1989 MAR p. 30, Eff. 1/13/89; AMD, 1990 MAR p. 936, Eff. 5/18/90; AMD, 1994 MAR p. 2957, Eff. 11/11/94; TRANS, from DSL, 1996 MAR p. 3042; AMD, 1999 MAR p. 811, Eff. 4/23/99; AMD, 1999 MAR p. 2768, Eff. 12/3/99; AMD, 2004 MAR p. 2548, Eff. 10/22/04; AMD, 2012 MAR p. 737, Eff. 4/13/12; AMD, 2024 MAR p. 258, Eff. 2/10/24; AMD, 2025 MAR, 17-451, Eff. 3/29/25.