



ADMINISTRATIVE RULES OF MONTANA



17.24.924 DISPOSAL OF UNDERGROUND DEVELOPMENT WASTE: GENERAL REQUIREMENTS

- (1) To the extent that underground development waste is not proposed for backstowing, it must be demonstrated, to the satisfaction of the department, that valid physical, economic, safety, environmental or other reasons exist for not doing so. Underground development waste to be returned to underground mine workings must be disposed of in accordance with a program approved by the department and the mine safety and health administration.
- (2) Underground development waste materials from activities located outside the permit area may be disposed of in the permit area only with approval of the department. Approval must be based upon a showing that disposal will be in accordance with this rule and all applicable rules.
- (3) Underground development waste must be hauled or conveyed to and placed in designated disposal areas within a permit area. Underground development waste may not be placed in an impoundment or an embankment. The waste must be placed in a controlled manner to ensure:
 - (a) that the leachate and surface runoff will be in compliance with ARM 17.24.631 and 17.24.633;
 - (b) stability and prevention of mass movement during and after construction;
 - (c) that reclamation and revegetation of the waste disposal area will be achieved in accordance with subchapters 5 through 8, except, in the case of waste disposal structures outside of mine excavation areas, those provisions of subchapter 5 related to approximate original contour are not required;
 - (d) that a public hazard will not be created; and
 - (e) that combustion will not occur.
- (4)
 - (a) Each waste disposal structure must be designed using current prudent design standards, certified by a licensed professional engineer experienced in the design of similar earth and waste structures, and approved by the department.
 - (b) Waste disposal structures must meet the requirements of 30 CFR 77.214 and 77.215.
- (5) All vegetation and other organic materials must be removed from the disposal site and the soil must be removed, segregated, and stored or replaced pursuant to ARM 17.24.701 through 17.24.703. If approved by the department, organic material may be used as mulch or may be included in the soil to control erosion, promote growth of vegetation, or increase moisture retention of the soil.

- (6) Slope protection must be provided to minimize surface erosion at the site. Diversions necessary to control erosion, prevent water infiltration, and ensure stability must be installed. Diversion design must conform with the requirements of ARM 17.24.635 through 17.24.637. All disturbed areas, including diversion ditches that are not riprapped, must be vegetated upon completion of construction.
- (7) Except for head-of-hollow and valley fills, disposal structures must be located on the most moderately sloping and naturally stable areas available, except that the department may approve disposal in another area upon determining that disposal in that area would be more environmentally protective. Materials suitable for disposal must be placed upon or above a natural terrace, bench, or berm, if such placement provides additional stability and prevents mass movement.
- (8) The waste must be hauled or conveyed and placed in horizontal lifts of not greater than four feet in thickness in a controlled manner, concurrently compacted as necessary to ensure mass stability and prevent mass movement, and graded to allow surface and subsurface drainage to be compatible with the natural surroundings and ensure a long-term static safety factor of 1.5.
- (9) Following final grading of the waste disposal structure, the waste must be covered with a minimum of four feet of the best available non-toxic and non-combustible material, in a manner that does not impede drainage from the underdrains, unless the applicant demonstrates and the department finds that a lesser depth will provide for revegetation consistent 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. Toxic, acid-forming, and other deleterious waste must be handled and covered in accordance with ARM 17.24.501(2) and 17.24.505(2).
- (10) The final configuration of a structure must be suitable for postmining land uses approved in accordance with ARM 17.24.762, except that no depressions or impoundments may be placed on the completed structure.
- (11) The final configuration of the structure must be designed to minimize erosion. Terraces may be utilized to control erosion and enhance stability if approved by the department. The outslope of the fill must not exceed 1v:3h, unless otherwise approved in writing by the department, but in no case may the outslope exceed 1v:2h.
- (12) Where the natural slope of the disposal site exceeds 1v:3h, or such lesser slope as may be designated by the department based on local conditions, keyway cuts (excavations to stabilized bedrock) or rock toe buttresses must be constructed to stabilize the fill. Where the toe of the underground development waste rests on a downslope, stability analyses must be performed in accordance with ARM 17.24.320 to determine the size of the rock toe buttresses and keyway cuts.
- (13) If the disposal site contains springs, natural or manmade watercourses, or wet-weather seeps, an underdrain system consisting of durable rock must be constructed in a manner that prevents infiltration of the water into the underground development waste material and to ensure stability of the disposal structure.
- (14) The underdrain system for a structure must be constructed in accordance with the following:
 - (a) Underdrains must consist of non-degradable, non-acid and non-toxic-forming rock such as natural sand and gravel, sandstone, limestone, or other durable rock that will not slake in water and will be free of coal, clay or other nondurable material.
 - (b) A system of underdrains must:

- (i) be installed along the natural drainage system;
 - (ii) extend from the toe to the head of the fill; and
 - (iii) contain lateral drains to each area of potential drainage or seepage.
- (c) A filter system to insure the proper functioning of the rock underdrain system must be designed and constructed using standard geotechnical engineering methods.
- (d) In constructing the underdrains, no more than 10 percent of the rock may be less than 12 inches in size and no single rock may be larger than 25 percent of the width of the drain. The minimum size of the main underdrain must meet the following specifications:

<u>Total amount of fill material</u>	<u>Predominant type of fill material</u>	<u>Minimum size of drain, in feet</u>	
		<u>Width</u>	<u>Height</u>
Less than 1,000,000			
yd\	sandstone	10	4
yd\	shale	16	8
More than 1,000,000			
yd\	sandstone	16	8
yd\	shale	16	16

- (15) Drainage must not be directed over the outslope of the fill.
- (16) Surface water runoff from the area above a structure must be diverted away from the structure and into stabilized diversion channels designed to pass safely the runoff from a 100-year, six-hour precipitation event or larger event specified by the department. Surface runoff from the structure surface must be diverted to stabilized channels off the fill that will safely pass the runoff from a 100-year, six-hour precipitation event. Diversion design must comply with the requirements of ARM 17.24.637.
- (17) The foundation and abutments of a structure must be stable under all conditions of construction and operation. Sufficient foundation investigation and laboratory testing of foundation materials must be performed in order to determine the design requirements for stability of the foundation. Analyses of foundation conditions must include the effect of underground mine workings, if any, upon the stability of the structure.
- (18)
- (a) A qualified licensed professional engineer, or other qualified professional specialist under the direction of the professional engineer, shall inspect each structure during construction.

The professional engineer or specialist must be experienced in the construction of earth and waste structures.

- (b) The inspections must be made at least quarterly throughout construction and during critical construction periods. The department may require more frequent inspections during any construction period, as necessary. Critical construction periods include, at a minimum:
 - (i) foundation preparation including the removal of all organic material and soil;
 - (ii) placement of underdrains and protective filter systems;
 - (iii) installation of final surface drainage systems; and
 - (iv) the final grading and revegetation of the site.
 - (c) Quarterly inspections by the engineer or specialist must also be conducted during placement and compaction of underground development waste. More frequent inspections must be conducted if the department determines that a danger of harm exists to the public health and safety or the environment or that more frequent inspection is necessary to ensure compliance. Inspections must continue until the waste disposal structure has been finally graded and revegetated or until a later time as required by the department.
 - (d) The qualified licensed professional engineer shall provide a certified report to the department within seven working days after each inspection that the structure has been constructed and maintained as designed and in accordance with the approved plan and this subchapter. The report must include appearances of instability, structural weakness, and other hazardous conditions.
 - (e) The certified report on the drainage system and protective filters must include color photographs taken during and after construction, but before underdrains are covered with underground development waste. If the underdrain system is constructed in phases, each phase must be certified separately. The photographs accompanying each certified report must be taken in adequate size and number with enough terrain or other physical features of the site shown to provide a relative scale to the photographs and to specifically and clearly identify the site.
 - (f) A copy of each inspection report must be retained at or near the minesite.
- (19) If any inspection discloses that a potential hazard exists, the department must be informed promptly 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 emergency agencies that other emergency procedures are required to protect the public. The department shall also notify the owner of land upon which the disposal structure is located (if that owner is different from the mining company), adjacent landowners, residences, and businesses that could be adversely affected, including those at least one mile down gradient from the disposal site, of the potential hazard and of the actions being taken.
- (20) Disposal of underground waste by incorporation into spoils backfill of excavation areas must be in accordance with (3) and (19).

Implementing statute(s): 82-4-227, 82-4-231, 82-4-232, 82-4-233, MCA

History: NEW, 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.