



Ohio Administrative Code Rule 1501:13-9-07 Disposal of excess spoil.

Effective: January 17, 2016

(A) The objective of this rule is to ensure mass stability and protection from erosion and minimize the adverse effects of leachate and surface water runoff from the fill on surface and ground waters, using current, recognized engineering standards and practices as evaluated and approved by the chief.

(B) Design certification. The fill and appurtenant structures shall be designed using current, prudent engineering practices and shall meet the design criteria established in this rule. An engineer experienced in the design of earth and rock fills shall certify the design of the fill and appurtenant structures.

(C) Location. If placed on a slope, the spoil is placed upon the most moderate slope among those upon which, in the judgment of the chief, the spoil could be placed in compliance with the requirements of Chapter 1513. of the Revised Code and these rules, and shall be placed, where possible, upon, or above, a natural terrace, bench, or berm, if such placement provides additional stability and prevents mass movement.

(D) Foundation.

(1) The foundation and abutments of the fill must be stable under all conditions of construction.

(2) Sufficient foundation investigations, as well as any necessary laboratory testing of foundation material, as deemed needed by the certifying engineer, shall be performed in order to determine the design requirements for foundation stability. The analyses of foundation conditions shall take into consideration the effect of underground mine workings, if any, upon the stability of the fill and appurtenant structures. The chief may require additional foundation investigations and laboratory testing.

(3) Where the slope along the profile in the disposal area is in excess of 2.8h:1v, keyway cuts or rock



toe buttresses shall be constructed to ensure stability of the fill. Where the toe of the spoil rests on a downslope in excess of 2.8h:1v, stability analyses shall be performed in accordance with paragraph (N)(3) of rule 1501:13-4-05 or paragraph (P)(3) of rule 1501:13-4-14 of the Administrative Code to determine the size of rock toe buttresses and keyway cuts.

(E) Placement of excess spoil.

(1) All vegetative and organic materials shall be removed from the disposal area prior to placement of the excess spoil. Topsoil shall be removed, segregated, and stored or redistributed in accordance with rule 1501:13-9-03 of the Administrative Code. If approved by the chief, organic material may be used as mulch or may be included in the topsoil to control erosion, promote growth of vegetation, or increase the moisture retention of the soil.

(2) All backfilling and grading requirements shall be met by placements of spoil. Face slopes shall not exceed 2h:1v. The grade of the outslope between terrace benches shall not be steeper than 2h:1v.

(a) Excess spoil shall be:

(i) Transported and placed in a controlled manner in horizontal lifts not exceeding four feet in thickness;

(ii) Concurrently compacted as necessary to ensure mass stability and to prevent mass movement during and after construction;

(iii) Graded so that surface and subsurface drainage is compatible with natural surroundings; and

(iv) Covered with topsoil or substitute material in accordance with rule 1501:13-9-03 of the Administrative Code.

(b) The chief may approve a design which incorporates placement of excess spoil in horizontal lifts other than four feet in thickness when it is demonstrated by the operator and certified by an engineer that the design will ensure the stability of the fill and will meet all other applicable requirements.



- (4) The fill shall be designed to attain a minimum long-term static safety factor of 1.5.
- (5) The final configuration of the fill shall be suitable for the approved postmining land use. Terraces may be constructed on the outslope of the fill if required for stability, control of erosion, to conserve soil moisture, or to facilitate the approved postmining land use.
- (6) No permanent impoundments shall be allowed on the completed fill. Small depressions may be allowed by the chief if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation, and are not incompatible with stability of the fill.
- (7) Excess spoil that is acid- or toxic-forming or combustible shall be disposed of in accordance with paragraph (J) of rule 1501:13-9-04 of the Administrative Code.
- (F) Drainage control.
- (1) If the disposal area contains springs, natural or man-made water courses, or wet weather seeps, the fill design shall include diversions and underdrains as necessary to control erosion, prevent water infiltration into the fill, and ensure stability.
- (2) Diversions shall comply with the requirements of paragraphs (F) and (I) of rule 1501:13-9-04 of the Administrative Code.
- (3) Underdrains shall consist of durable rock or pipe and be designed and constructed using current, prudent engineering practices. The underdrain system shall be designed to carry the anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area and shall be protected from piping and contamination by an adequate filter. Rock underdrains shall be constructed of durable, nonacid- and nontoxic-forming rock such as natural sand and gravel, sandstone or limestone, that does not slake in water or degrade to soil material, and that is free of coal, clay, or other nondurable material. Perforated pipe underdrains shall be corrosion-resistant and shall have characteristics consistent with the long-term life of the fill.
- (G) Surface area stabilization. Slope protection shall be provided to minimize surface erosion at the site. All disturbed areas, including diversion channels that are not riprapped or otherwise protected,



shall be revegetated upon completion of construction.

(H) Excess spoil may be used outside the permit area to reclaim unreclaimed mined lands adjacent to the permit area under a reclamation contract executed pursuant to section 1513.27 or 1513.37 of the Revised Code, provided that:

(1) If the unreclaimed lands are abandoned mined lands, they are eligible for reclamation under section 1513.27 or 1513.37 of the Revised Code;

(2) The excess spoil is placed in an environmentally and technically sound manner and will constitute sound engineering practices; and

(3) The excess spoil is placed where it will not destroy or degrade features of environmental value.

(I) Inspections. An engineer, or other qualified professional specialist under the direction of the engineer, shall periodically inspect the fill during construction. The engineer or specialist shall be experienced in the construction of earth and rock fills.

(1) Such inspections shall be made at least quarterly throughout construction and during critical construction periods. Critical construction periods shall include at a minimum:

(a) Foundation preparation, including the removal of organic material and topsoil;

(b) Placement of underdrains and protective filter systems;

(c) Installation of final surface drainage systems; and

(d) The final graded and revegetated fill.

(2) Regular inspections by the engineer or specialist shall also be conducted during placement and compaction of fill materials.

(3) The engineer shall provide a certified report to the chief promptly after each inspection certifying



that the fill has been constructed and maintained as designed and in accordance with the approved plan, Chapter 1513. of the Revised Code and these rules. Each report shall include appearances of instability, structural weakness, and other hazardous conditions. The report after inspection of the final graded and revegetated fill shall certify, in addition, that the fill is expected to remain stable with the required safety factor.

(4) Photographs.

(a) The certified report on the drainage system and protective filters shall include color photographs taken during and after construction, but before underdrains are covered with excess spoil. If the underdrain system is constructed in phases, each phase shall be certified separately.

(b) When excess durable rock spoil is placed in single or multiple lifts such that the underdrain system is constructed simultaneously with excess spoil placement by the natural segregation of dumped materials, in accordance with paragraph (N) of this rule, color photographs shall be taken of the underdrain as the underdrain system is being formed.

(c) The photographs accompanying each certified report shall 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 identify the site specifically and clearly.

(5) A copy of each inspection report shall be retained at or near the mine site.

(J) Coal mine waste. Coal mine waste may be disposed of in excess spoil fills if approved by the chief and if such waste is:

(1) Placed in accordance with rule 1501:13-9-09 of the Administrative Code;

(2) Nontoxic- and nonacid-forming; and

(3) Of the proper characteristics to be consistent with the design stability of the fill.

(K) Underground disposal. Excess spoil may be disposed of in underground mine workings, but



only in accordance with a plan approved by the chief and MSHA under paragraphs (N) and (O) of rule 1501:13-4-14 of the Administrative Code.

(L) Valley fills and head-of-hollow fills. Valley fills and head-of-hollow fills shall meet the requirements of paragraphs (A) to (J) of this rule and the additional requirements of paragraph (L) of this rule.

(1) Drainage control.

(a) The top surface of the completed fill shall be graded so that the final slope after settlement will be toward properly designed drainage channels. Uncontrolled surface drainage may not be directed over the outslope of the fill.

(b) Runoff from areas above the fill and runoff from the surface of the fill shall be diverted into stabilized diversion channels designed to meet the requirements of paragraphs (F) and (I) of rule 1501:13-9-04 of the Administrative Code and, in addition, to pass safely the runoff from a one-hundred-year, six-hour precipitation event.

(2) Rock-core chimney drains. A rock-core chimney drain may be used in a head-of-hollow fill, instead of the underdrain and surface diversion system normally required, as long as the fill is not located in an area containing intermittent or perennial streams. A rock-core chimney drain may be used in a valley fill if the fill does not exceed two hundred fifty thousand cubic yards of material and upstream drainage is diverted around the fill. The alternative rock-core chimney drain system shall be incorporated into the design and construction of the fill as follows:

(a) The fill shall have, along the vertical projection of the main buried stream channel or rill, a vertical core of durable rock at least sixteen feet thick, which shall extend from the toe of the fill to the head of the fill, and from the base of the fill to the surface of the fill. A system of lateral rock underdrains shall connect this rock core to each area of potential drainage or seepage in the disposal area. The underdrain system and rock core shall be designed to carry the anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area. Rocks used in the rock core and underdrains shall meet the requirements of paragraph (F)(3) of this rule.



(b) A filter system to ensure the proper long-term functioning of the rock core shall be designed and constructed using current, prudent engineering practices.

(c) Grading may drain surface water away from the outslope of the fill and toward the rock core. In no case, however, may intermittent or perennial streams be diverted into the rock core. The maximum slope of the top of the fill shall be 33h:1v. A drainage pocket may be maintained at the head of the fill during and after construction, to intercept surface runoff and discharge the runoff through or over the rock drain, if stability of the fill is not impaired. In no case shall this pocket or sump have a potential capacity for impounding more than ten thousand cubic feet of water. Terraces on the fill shall be graded with a one per cent slope toward the rock core.

(M) Durable rock fills. The chief may approve an alternative method of disposal of excess durable rock spoil by gravity placement in single or multiple lifts, provided the following conditions are met:

(1) Except as provided in paragraph (M) of this rule, the requirements of paragraphs (A) to (J) of this rule are met;

(2) The excess spoil consists of at least eighty per cent, by volume, durable, nonacid- and nontoxic-forming rock such as natural sand and gravel, sandstone or limestone, that does not slake in water or degrade to soil material, and that is free of coal, clay, or other nondurable material. Where used, noncemented clay shale, clay spoil, soil or other nondurable excess spoil materials shall be mixed with excess durable rock spoil in a controlled manner so that no more than twenty per cent of the fill volume, as determined by tests performed by an engineer and approved by the chief, is not durable rock;

(3) An engineer certifies that the design will ensure the stability of the fill and meet all other applicable requirements;

(4) The fill is designed to attain a minimum long-term static safety factor of 1.5 and an earthquake safety factor of 1.1;



(5) The underdrain system may be constructed simultaneously with excess spoil placement by the natural segregation of dumped materials, provided the resulting underdrain system is capable of carrying anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area and the other requirements for drainage control are met; and

(6) Surface water runoff from areas adjacent to and above the fill is not allowed to flow onto the fill and is diverted into stabilized diversion channels designed to meet the requirements of paragraphs (F) and (I) of rule 1501:13-9-04 of the Administrative Code and to safely pass the runoff from a one-hundred-year, six-hour precipitation event.

(N) Preexisting benches. The chief may approve the disposal of excess spoil through placement on preexisting benches, provided that the following conditions are met:

(1) Except as provided in paragraph (N) of this rule, the requirements of paragraphs (A), (B), and (E) to (J) of this rule are met;

(2) Excess spoil shall be placed only on the solid portion of the preexisting bench;

(3) The fill shall be designed, using current, prudent engineering practices, to attain a long-term static safety factor of 1.3 for all portions of the fill;

(4) The preexisting bench shall be backfilled and graded to:

(a) Achieve the most moderate slope possible which does not exceed the angle of repose; and

(b) Eliminate the highwall to the maximum extent technically practical; and

(5) Disposal of excess spoil from an upper actively mined bench to a lower preexisting bench by means of gravity transport may be approved by the chief provided that:

(a) The gravity transport courses are determined on a site-specific basis by the operator as part of the permit application and approved by the chief to minimize hazards to health and safety and to ensure



that damage will be minimized between benches, outside the set course, and downslope of the lower bench should excess spoil accidentally move;

(b) All gravity-transported excess spoil, including that excess spoil immediately below the gravity transport courses and any preexisting spoil that is disturbed, is rehandled and placed in horizontal lifts in a controlled manner, concurrently compacted as necessary to ensure mass stability and to prevent mass movement, and graded to allow surface and subsurface drainage to be compatible with the natural surroundings and to ensure a minimum long-term static safety factor of 1.3. Excess spoil on the bench prior to the current mining operation that is not disturbed need not be rehandled except where necessary to ensure stability of the fill;

(c) A safety berm is constructed on the solid portion of the lower bench prior to gravity transport of the excess spoil. Where there is insufficient material on the lower bench to construct a safety berm, only that amount of excess spoil necessary for the construction of the berm may be gravity-transported to the lower bench prior to construction of the berm; and

(d) Excess spoil shall not be allowed on the downslope below the upper bench except on designated gravity transport courses which have been properly prepared according to rules 1501:13-9-03 and 1501:13-9-14 of the Administrative Code. Upon completion of the fill, no excess spoil shall be allowed to remain on the designated gravity transport course between the two benches and each transport course shall be reclaimed in accordance with the requirements of these rules.