

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

**LAND RECONSTRUCTION, CURRENTLY MINED LAND
(ac.)
CODE 544**

DEFINITION

Restoring currently mined land to an acceptable form and planned use.

PURPOSE

Prevent negative impacts to soil, water, and air resources in and near mined areas.

Restore soil quality to pre-mining condition.

Reduce erosion and sedimentation.

Maintain/improve landscape visual quality.

CONDITIONS WHERE PRACTICE APPLIES

This standard applies to areas that are or will be undergoing surface mining operations. It applies to the identification, removal, stockpiling and replacement of soil materials on currently mined land. This standard also applies to nearby areas that may be affected by the mining activities.

CRITERIA

Laws and regulations. This practice must conform to all federal, state, and local laws and regulations. Laws and regulations of particular concern include those involving water and drainage rights, land use, pollution control, property easements, wetlands, preservation of cultural resources, and endangered species. This practice must also comply with laws and regulations relating to mining and reclamation. These include:

Surface Mining Control and Reclamation Act of 1977 (SMCRA), 30 U.S.C. 1201 et seq.

30CFR785.17, 816.22, and Part 823.

Federal Register/Vol. 64, No. 124, Tuesday, June 29, 1999/Notices, pages 34770-34778.

30CFR780.15 - Air pollution control plan.

30CFR701.5 - Definitions: Fugitive dust.

Dust control. The generation of particulate matter and fugitive dust shall be controlled when moving soil and other materials by controlling vehicular and pedestrian traffic; and/or by modifying soil moisture. Temporary vegetation shall be established, as needed, on disturbed soils.

Earth moving activities shall be restricted or stopped when wind direction and velocity could allow particulate matter and dust to impair visibility on public roads.

Site preparation. Areas shall be cleared of trees, logs, brush, rubbish, and other undesirable materials. Areas to be preserved, including those containing trees, vegetation, stream corridors, natural springs, or other important features shall be properly identified.

Additional measures shall be installed as needed to support the uses of the site.

Establishment of vegetation. Uncropped areas shall be vegetated following South Dakota (SD) Natural Resources Conservation Service (NRCS) practice standard Critical Area Planting (342).

ADDITIONAL CRITERIA TO RESTORE PRODUCTIVITY OF SOILS TO THEIR PRE-MINING LEVEL

Removal of material for soil reconstruction. A detailed soil survey shall be done on the entire area to be mined. This information will be used to determine the extent and location of prime farmland soils.

All upper soil horizons to be used in reconstructing the soil shall be removed from the immediate area before blasting, mining, or any surface disturbance other than site preparation (described above).

If the area is prime farmland and/or soil productivity is consistent with that needed for

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post-mining use, the A horizon shall be removed and stockpiled separately from other soil material. The B horizon or other underlying layers suitable for root development shall be removed and segregated for use as subsoil. The minimum depth of soil to be reconstructed shall be 48 inches or the depth of the subsurface horizon in the natural soil, whichever is less. If root-inhibiting layers, such as bedrock or a fragipan underlie the natural soil, the reconstructed depth shall be no less than the rooting depth of the original soil.

For soils that are not prime farmland, the A horizon shall be removed for use as surface soil on disturbed areas. If the A horizon is less than six inches thick, material (other than bedrock) immediately below the A horizon shall be removed and used to obtain six inch thickness. If the total thickness of available material is less than six inches, all unconsolidated material shall be used.

Soils identified with high electrical conductivity (EC), calcium carbonate, sodium or other restrictive properties shall be separated and treated if practical.

Removal of overburden material for use as topsoil. Selected overburden material can be substituted for or added to the material in the A and B horizons. Before this is done, field observations and/or chemical and physical laboratory analyses must be done which demonstrate that the overburden material, or a mixture of overburden and original topsoil, is better suited to restoring the capability and productivity than the original A and B horizon material. Analyses shall include determination of pH value; sulfide content; percentage of organic material; nitrogen, phosphorus, and potassium contents; sodium absorption ratio (SAR); electrical conductivity (EC); texture; and available water capacity. Field-site trials or greenhouse tests shall be conducted if needed to ascertain the feasibility of using overburden.

If the overburden material is determined to be suitable, it shall be removed, separated from other material, and replaced according to the requirements specified in this standard.

Storage of soil material. If it is impractical to spread excavated material immediately, it must be stockpiled. Stockpiles shall be selectively located and protected against wind and water

erosion, particulate matter generation, unnecessary compaction, and contamination by undesirable materials.

Replacement of soil material. Before spreading topsoil, regraded areas must be scarified or otherwise treated to eliminate slippage surfaces and to promote root penetration.

Topsoil shall be spread in a manner that insures the position and thickness of each horizon is equivalent to those in the undisturbed soil. Spreading operations must prevent excess compaction. Bulk density and soil strength of the reconstructed soil when moist must support plant growth at a level equivalent to that of a similar layer in undisturbed soil.

Erosion and sedimentation reduction. A resource management system that reduces water and/or wind erosion to acceptable levels must be developed for all sites.

The resource management system shall consider buffer practices, such as filter strips, or similar practices to reduce sediment delivery off the reclamation site.

Visual Quality of the Landscape. The appearance of reclaimed sites must be compatible with the adjacent landscape. Designs shall consider the visual quality of areas of high public visibility or importance.

Disturbed areas shall be shaped to blend with the adjacent landscape as much as possible.

CONSIDERATIONS

Consider locations for access roads, impoundments, and storage of soil material.

Consider measures for water management, spoil, and soil placement, restoration of productivity and revegetation.

Plantings to sequester carbon.

Consider impacts on cultural resources. This practice must comply with General Manual 420, Part 401.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice must meet this standard and describe requirements for achieving its purpose. A reclamation plan must be developed for each site. The plan

must specify the required procedures for reclamation and reconstruction activities.

Plans shall include provisions for managing toxic materials that may be encountered in installing this practice.

OPERATION AND MAINTENANCE (O&M)

An O&M plan shall be prepared for use by the owner/operator that provides specific details concerning operation and maintenance of installed conservation practices. The O&M plan shall specify procedures for:

Filling areas where settlement may adversely affect water management or land use.

Repairing and revegetating bare spots, eroded areas, areas of excessive settlement, and other areas on which the initial attempt to establish vegetation was not successful.

Adding soil amendments to soils that cannot support adequate vegetation or replacing soils with suitable soil material.

Maintaining access roads.

Keeping water management structures and channels clean and functional.

Controlling noxious weeds.

Using proper grazing practices.

Controlling vehicular traffic.

REFERENCES

Soil Survey Division Staff. 1993. Soil survey manual. Pp. 90-92. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Science of American Proceedings. 1956. Volume 20, Number 20, Pp. 288-292, "Influence of Moisture on Erodibility of Soil by Wind."