

**DEPARTMENT OF MINES, MINERALS AND ENERGY  
DIVISION OF MINED LAND RECLAMATION**

**Biosolids Use Guidelines**

The Department of Mines, Minerals and Energy's (DMME) Division of Mined Land Reclamation (DMLR) will implement the requirements of the Biosolids Use Regulations under [12VAC5-585 et. seq.](#) for the use of [biosolids](#) on permits issued under the Virginia Coal Surface Mining Reclamation Regulations.

As of January 1, 2008 (HB 2802, Acts of Assembly c. 881, 2007), the Virginia Department of Environmental Quality (DEQ) assumed regulatory oversight of all land application of biosolids. This moved the oversight of the Biosolids Use Regulations from the Virginia Department of Health (VDH) to DEQ. VDH will continue to consult with DEQ and advise on health issues related to biosolids applications.

These guidelines compliment [12VAC5-585-510\(D\)](#), regarding the application of biosolids for the reclamation of disturbed land. DMME/DMLR will review the reclamation operation plan that proposes the use of biosolids with the assistance of the Virginia Department of Conservation and Recreation, the Soil Conservation Service, Virginia Cooperative Extension Service, and DEQ.

An application to use biosolids on a DMME/DMLR permit must provide or comply with the following administrative requirements and management standards –

**Section I – ADMINISTRATIVE REQUIREMENTS**

- A. The permit application must provide a demonstration of legal right to enter and begin surface coal mining and reclamation operations for the biosolids site, as required by [§4VAC25-130-778.15](#).
- B. The notification requirements of [§4VAC 25-130-773.13\(a\)](#) shall apply and the public notice advertisement and notice to the local governing bodies must make specific reference to the proposed use of biosolids.
- C. The permit application shall provide a general description of the intended uses of the biosolids, as part of the operation plan (Section 10). The operation plan shall provide –
  - 1) A description of the nature, purpose, and location of the biosolids site, and how the biosolids will be stored prior to use, if applicable. Reference should be made as to where in the application the location of the biosolids site is identified on the applicable permit application and/or geologic maps
  - 2) The estimated beginning and ending dates for the biosolids application operation.
  - 3) An estimate of the volume of biosolids that will be utilized.
  - 4) A description of the proposed type of biosolids to be used, including the physical and chemical characteristics of the material.
- D. The location restrictions and design/construction details identified in Section II, Management Standards, must be certified by a registered professional engineer licensed to practice in the Commonwealth of Virginia. The certification shall not contain any qualifications or exemptions from the requirements of these guidelines and/or [§12VAC5-585 et. seq.](#)

- E. Once a permit is issued, the permittee may modify the biosolids application operation project by submitting a revision application to the DMLR. The revision shall include a new certified site management plan.
- F. DMME/DMLR approval for biosolids use on the permit area does not supersede other required permits, licenses, approvals, county ordinances, or standards required for use of biosolids.

## **Section II – MANAGEMENT STANDARDS**

**Location Restrictions** - Consistent with §[12VAC5-585-510](#)B 3 (c and d), biosolids shall not be placed in areas –

- A. Subject to base floods, unless it can be shown that biosolids can be protected from inundation or washout and that flow of water is not restricted;
- B. With the vertical separation between the biosolids and the maximum seasonal water table or bedrock less than two feet;
- C. Closer than (all distances are to be measured in the horizontal plane) –
  - 1) 100 feet of any perennial or intermittent stream (§[4VAC25-130-816.57](#) or §[4VAC 25-130-817.57](#));
  - 2) 100 feet of any water supply well or spring (other than a monitoring well) in existence at the onset of the project;
  - 3) 25 feet of a bedrock outcrop or sinkhole;
  - 4) 100 feet of a sinkhole; or,
  - 5) 25 feet from the permit boundary.
  - 6) 15 feet of water diversions, sedimentation structures, and any outslope or area beyond the mining bench that is outside of surface water runoff control.
  - 7) 15 feet from any of the adverse soil landscape features listed under the following “Operations Plan”, item B, that are not specifically covered by other setback/buffer zone restrictions. Hot spots (pH < 4.0) may be treated if appropriate soil pH control measures are taken.
- D. In wetlands, unless applicable federal, state, and local permits are obtained;
- E. Outside the approved DMME/DMLR permit boundary.

**Operations Plan** – The permit application operations plan addressing the biosolids use shall be prepared in accordance with §§[4VAC25-130-779.21](#), [4VAC25-130-779.22](#), [4VAC25-130-780.18](#), [4VAC25-130-780.21](#), and/or the comparable sections of Parts [4VAC25-130-783](#) and [4VAC25-130-784](#). The plan shall include –

- A. A narrative statement that certifies the biosolids meet the standards of §§[12VAC5-585-460](#) and [12VAC5-585-510](#), as set forth for agricultural use.
- B. Applicable maps identifying the locations within the permit where biosolids are proposed to be applied. The map criteria should include, but not be limited to, slope, rock type, depth to hard rock, surface topography/roughness, and delineate such features as –
  - 1) Highly acidic “hot spots” (pH < 4.0).
  - 2) Tension cracks or areas of instability.
  - 3) Marshy areas or wet spots on the permit site.
  - 4) Jurisdictional wetlands within and adjacent to the permit site.

- 5) All water diversion and sedimentation/drainage control structures.
- 6) Roads, right of ways, houses, and other cultural features.
- 7) Water supply and monitoring wells.
- 8) Exceptionally rocky areas with less than 15% fines (soil size or < 2mm).
- 9) The distance to natural surface waters, seeps, and springs.

The mine soils are to be sampled at a minimum frequency of once per 2 acres to a depth of six (6) inches. The samples must be analyzed for pH and soluble salts. The samples may be subject to acid-base accounting, depending on the pre-mining analysis or locally observed conditions. The analyses will be used to develop the minimum liming protocol for the mine soils used. Acidic mine soils must be limed to achieve an equilibrium pH of 6.0 immediately after biosolids incorporation.

C. The management practices plan, which will describe the application rates under §§[12VAC5-585-590](#), [12VAC5-585-600](#), [12VAC5-585-610](#). The biosolids application must not result in metal loadings which exceed those in §[12VAC5-585-610](#), and/or other applicable sections of the “Biosolids Use Regulations”.

- 1) For routine infrequent biosolids application to mined land, the maximum loading rate shall be 35 dry tons (as cake) per year.
- 2) If the biosolids have been combined with wood chips, sawdust; or other carbon sources such that their aggregate carbon to nitrogen (C/N) ratio is > 25, the maximum loading rate will be 50 dry tons (as cake) per acre.
- 3) Higher loading rates may be approved on a case by case basis, particularly in instances such as refuse pile reclamation (where higher loading rates have been shown to be critical to long term stabilization of the reclaimed area).
- 4) Biosolids may be re-applied to a site after 3 years as long as all lifetime loading limits set by the “Biosolids Use Regulations” are maintained and monitoring indicates no observable adverse effects from the initial biosolids application.
- 5) Biosolids must be incorporated with 48 hours after application on areas with slopes in excess of 10%, and within 96 hours of those less than 10%. Biosolids will not be applied to slopes in excess of 20%. A variance may be requested if and only if a suitable application technology has been demonstrated and on-site monitoring data confirms that sediment and pollutant runoff standards are met.
- 6) Biosolids may not be applied from November 15 through February 15, or to saturated soil. Biosolids may be applied to frozen ground only if a minimum 200 feet vegetated buffer is maintained between all application areas and surface water courses (excluding diversion ditches).
- 7) After the biosolids are incorporated into the area, the area will be immediately seeded in accordance with the approved revegetation plan.
- 8) Biosolids may be stockpiled on site for up to 6 months if appropriate measures are taken to prevent water runoff and leachate percolation. Storage facilities must be designed/constructed in accordance with §[12VAC5-585-500](#).
- 9) If the applied biosolids are not Class A or subjected to Class I treatment, crops intended for direct human consumption shall not be grown for a period of less than 3 years following the last date of biosolids application, unless the crop is tested to verify that it is not contaminated. No animals whose products are

- intended for human consumption may graze the site or obtain feed from the site for a period of 1 year following the last date of biosolids application.
- 10) Site access must be controlled and may be more restricted than for agricultural lands.

**Probable Hydrologic Consequences (PHC) Assessment and Water Monitoring Plans –**

- A. Baseline water samples that demonstrate the seasonal variability must be analyzed at least a year prior to biosolids application for each water quality sampling location of an area where biosolids will be applied.
- B. Surface and/or ground water monitoring shall be conducted in accordance with the approved NPDES and permit requirements. In addition, NPDES, surface, and groundwater sampling locations associated with the biosolids application areas must be monitored at least quarterly for nitrates for one year after the biosolids were applied.
- C. The PHC assessment shall address the use of biosolids on the permit site.
- D. If the permittee chooses to apply biosolids to slopes in excess of 20%, surface water discharge points must be monitored quarterly for EPA priority metals.
- E. Additional monitoring may be required by the DMME/DMLR if any combination of biosolids and site conditions indicate a potential for water quality degradation/risk.

**Miscellaneous -**

- A. Soil samples must be taken and analyzed to confirm long term pH control to > 5.0 at the application for final bond release is submitted to the DMLR
- B. The use of biosolids as a soil amendment shall be in accordance with the requirements of the [Virginia Department of Agriculture and Consumer Services](#) (VDACS) or the DEQ/DMME. If VDACS approves the biosolids as a soil amendment, no additional testing is necessary. However, if VDACS approval is not received, DMME in consultation with DEQ may require information and testing.
- C. A variance to these guidelines may be granted if the applicant or operator seeking to use biosolids demonstrates to the DMME and DEQ satisfaction that granting the variance will not result in an additional risk to the public health or the environment beyond the risk which would be imposed without the variance.

Should you have any questions concerning these guidelines, please contact the Technical Services Manager at (276) 523-8156.