12 VAC 5-585-500

A. ~~Three~~ Four types of storage may be integrated into a complete sludge management plan including: (i) "emergency storage" involving immediate implementation of storage for any sludge which becomes necessary due to unforeseen circumstances, (ii) "temporary storage" involving the provision of storage of stabilized sludges at the land application site which becomes necessary due to unforeseen climatic events which preclude land application of biosolids in the day that it is transported from the generator, (iii) "routine storage" involving the storage of biosolids as necessary for all nonapplication periods of the year. Only routine storage facilities shall be considered a facility under this chapter. (iv) “field storage” involving the provision of storage of biosolids at a land application site on pre-approved constructed areas in accordance with this section.

B. Emergency storage. The owner shall notify the division upon implementation of any emergency storage. Approval of such storage and subsequent processing of the sludge and supernatant will be considered as a contingency plan integrated into the sludge management plan. Only emergency storage shall be used for storage of unstabilized sludges. Further processing utilization and disposal shall be conducted in accordance with the approved sludge management plan. Design and implementation of facilities used for emergency storage shall not result in water quality, public health or nuisance problems.

C. Temporary storage. The owner shall notify the division whenever it is necessary to implement temporary storage. Temporary storage may be utilized at the land application

site due to unforeseen climatic factors which preclude application of sludge (either off-loaded at the site or in transport to the site) to permitted sites within the same working day. Temporary storage is not to be used as a substitute for routine storage and is restricted as follows:

1. Sludge stored at the site shall be land applied prior to additional off-loading of sludge at the same site;

2. The owner shall be restricted to storing a daily maximum amount of 100 wet tons per operational site;

3. The stored sludge shall be land applied within 30 days from the initiation of storage or moved to a routine sludge facility;

4. Approval of plans for temporary storage will be considered as part of the overall sludge management plan;

5. Temporary storage shall not occur in areas prone to flooding at a 25-year or less frequency interval;

6. A synthetic liner shall be required for placement under and over sludge stored in this manner with one exception: where sludge is stockpiled for less than seven days, a liner

placed under the stored sludge is not required. Surface water diversions and other Best Management Provisions (BMP) should be utilized as appropriate; and

7. Temporary storage shall not result in water quality, public health or nuisance problems.

D. Routine storage. Routine storage facilities shall be provided for all land application projects if no alternative means of management is available during nonapplication periods. Plans and specifications for any surface storage facilities (pits, ponds, lagoons) or aboveground facilities (tanks, pads) shall be submitted as part of the minimum information requirements.

1. Location. The facility shall be located at an elevation which is not subject to, or is otherwise protected against, inundation produced by the 100-year flood/wave action as defined by U.S. Geological Survey or equivalent information. Storage facilities should be located to provide minimum visibility. All storage facilities with a capacity in excess of 100 wet tons and located off-site of property owned by the generator shall be provided with a minimum 750-feet buffer zone. The length of the buffer zone considered will be the distance measured from the perimeter of the storage facility. Residential uses, high-density human activities and activities involving food preparation are prohibited within the buffer zone. The commissioner may consider a reduction of up to ½ of the above buffer requirements based on such facts as lagoon area, topography, prevailing wind direction, and the inclusion of an effective windbreak in the overall design.

2. Design capacity. The design capacity shall be sufficient to store a minimum volume equivalent to 60 days or more average production of biosolids and the incidental wastewater generated by operation of the treatment works plus sufficient capacity necessary for: (i) the 25 year-24 hour design storm (incident rainfall and any runoff as may be present); (ii) net precipitation excess during the storage period; and (iii) an additional one foot freeboard from the maximum water level (attributed to the sum of the above factors) to the top berm elevation. Storage capacity of less than that specified above will be considered on a case-by-case basis only if sufficient justification warrants such a reduction. If alternative methods of management cannot be adequately verified contractors should provide for a minimum of 30 days of in-state routine storage capacity for the average quantity of sludge transported into Virginia from out-of-state treatment works generating at least a Class II level treated sludge.

3. Construction. Storage facilities shall be of uniform shape (round, square, rectangular) with no narrow or elongated portions. The facilities shall be lined in accordance with the requirements contained in sewerage regulations or certificate. The facilities shall also be designed to permit access of equipment necessary for loading and unloading biosolids, and should be designed with receiving facilities to allow for even distribution of sludge into the facility. Design should also provide for truck cleaning facilities as may be necessary. Storage facilities with a capacity of 100 wet tons or less shall comply with the provision for temporary storage as a minimum.

4. Monitoring. All sludge storage facilities in excess of 100-wet ton capacity shall be monitored in accordance with the requirements of this chapter. Plans and specifications shall be provided for such a monitoring program in accordance with the minimum information specified in Part IV (12VAC5-585-620 et seq.).

5. Operation. Only biosolids suitable for land application (Class A or B Biosolids) shall be placed into permitted routine storage facilities. Storage of biosolids located offsite or remote from the Wastewater Treatment Works during the summer months shall be avoided whenever possible so that the routine storage facility remains as empty as possible during the summer months. Storage facilities should be operated in a manner such that sufficient freeboard is provided to ensure that the maximum anticipated high water elevation due to any and all design storm inputs is not less than one foot below the top berm elevation. Complete plans for supernatant disposal shall be provided in accordance with Part IV (12VAC5-585-620 et seq.). Plans for supernatant disposal may include transport to the sewage treatment works, mixing with the biosolids for land application or land application separately. However, separate land application of supernatant will be regulated as liquid sludge; additional testing, monitoring and treatment (disinfection) may be required. The facility site shall be fenced to a minimum height of five feet; gates and locks shall be provided to control access. The fence should be posted with signs identifying the facility. The fence should not be constructed closer than 10 feet to the outside edge of the facility or appurtenances, to allow adequate accessibility.

6. Closure. An appropriate plan of closure or abandonment shall be developed by the permittee when the facility ceases to be utilized and approved by the commissioner. Such plans may also be reviewed by the Department of Environmental Quality.

7. Recordkeeping. A manifest system shall be developed, implemented and maintained and be available for inspection during operations as part of the overall daily recordkeeping for the project (Part IV, 12VAC5-585-620 et seq.).

E. Field Storage. The biosolids owner may use field storage as an alternative to routine storage during periods of inclement weather, or when the site soils are frozen, or surface saturated. Field storage may be used during winter conditions when there is limited or no nutrient uptake, or land application operations could physically alter the site surface or otherwise increase surface runoff of particulates. The local government shall be notified by the Division in advance of all proposed field storage locations and provided an opportunity of at least 30 days to comment on the proposed site. The Commissioner will consider all comments on the proposed location and may deny or revoke approval of any site if it becomes problematic due to odor, health, or water quality issues, in accordance with the provisions of this chapter (12 VAC 5-585-70). Adequate daily records of biosolids quantities stored shall be maintained and reported monthly in accordance with the provisions of this chapter. The design and operation of the field storage site shall be adequately described and approved in accordance with this chapter (12 VAC 5-585-500 and 620). All field storage locations and biosolids sources must be pre-approved by the Division and all such facilities shall comply with the following standards:

1. Only dewatered biosolids suitable for land application (Class A or B pathogen control) and established as having minimal odor [e.g. pH of 11 or more, or digested with a volatile solids level of 60 percent or less or other method approved by the Division] shall be placed into field storage.

2. Field storage operations shall not result in water quality, public health, or public nuisance problems. If field storage is used, the following requirements and Best Management Practices shall be adhered to:

a) Field storage locations shall be as remote as practicable and located only in areas identified as having no flooding potential as identified by the County Soil Survey. Sites selected for field storage shall not be located on soils that regularly experience either standing water, excessive runoff after storm events, or water tables within 6 inches of the ground surface, such as the Hydrologic Group D soils as defined by the Natural Resources Conservation Service (NRCS) and indicated by the County Soil Survey. Unlined stockpiles shall not be located on soils with NRCS defined permeability values of more than 12.0 inches per hour in the top 24 inches of soil (such as gravel) resulting in excessive infiltration rates.

b) The quantity of stored biosolids at the storage site shall be limited to the amount equivalent to the quantity that would provide the agronomic rate of application, in accordance with the provisions of this chapter (12 VAC 5-585-510), for approved

sites within or nearby to the property on which the storage site is located. The stored biosolids shall be sufficiently dewatered so as to be capable of maintaining a stacking height of at least 4 feet. The ability of the biosolids to stay consolidated during stockpiling is to be verified and documented by the operator of the treatment works producing the biosolids at the source. This consolidation property is to be rechecked at the storage location if the biosolids contain contain polymers that may be altered during storage such that the biosolids bound water is released. Biosolids may be blended with thickened biosolids at the source treatment facility if they do not have the proper consistency.

c) Field storage areas are to be designed to minimize accumulation of precipitation, or methods of removing accumulated precipitation are to be provided. Management steps must be taken to assure that no ponding of water occurs in contact with biosolids. The stored biosolids shall maintain a sloping surface shape that minimizes accumulation of precipitation on the stored biosolids.

3. The design of field storage sites shall meet the following requirements:

a. The distance to seasonal high water table shall be equal to or more than 36 inches, unless a liner with a minimum permeability of 10^{-6} cm/sec and of sufficient strength to support operational equipment and approved by the Division is installed.

b. The distance to bedrock shall be equal to or greater than 40 inches unless a liner with a minimum permeability of 10^{-6} cm/sec and of sufficient strength to support operational equipment and approved by the Division is installed.

c. In karst topography, the Division may require additional design measures.

d. If the average site slope is greater than 6%, adequate surface water diversion methods must be provided and maintained.

e. The minimum buffer distances to property lines, occupied residences, and potable wells will be 500 feet. The Commissioner may grant a buffer reduction of up to 250 feet if the affected party agrees to the reduction in writing and the agreement is notarized and submitted to the Division. The minimum distance to surface waters that are flowing in a distinct channel shall be 500 feet.

4. Seasonal restrictions on storage time shall be established in accordance with the design of the field storage site. Biosolids may be stored on an approved field storage site for up to 14 days. If biosolids are stored on an approved field storage site for more than 14 days, a liner base under the stored biosolids shall be maintained during the storage time. The liner base shall be impervious and of sufficient strength to support operational equipment as approved by the Division. If biosolids are to be stored for more than 45 days, a cover over the biosolids equivalent or better to that provided by a 6 mil plastic material, shall be maintained during the storage time. Biosolids stored during the months

of April through October shall be removed for permitted use or disposal within 30 days of placement in storage. Biosolids stored during the months of November through March shall be removed for permitted use or disposal within 45 days of placement in storage unless covered. Covered biosolids, stored during the months of November through March, must be removed for permitted use or disposal within 120 days of placement in storage.

5. Operation of the field storage site shall meet the following requirements:

a. Biosolids must be removed from the storage site within 48 hours if objectionable odors (would interfere with reasonable use of adjacent property) related to the stored biosolids are verified by the Division at any occupied residence on surrounding property.

b. Biosolids placed into covered storage are to be of a sufficiently cool temperature to allow placement of covering that will not result in safety or health concerns from a build up of heat, ammonia, or other gases or odors. Only biosolids with a minimum potential for heat build-up, such as stabilized compost, are to be placed in covered storage as incompletely stabilized compost can reheat to the point of catching fire.

c. Biosolids stockpiles are to be checked by the owner, at least every 14 days and within 24 hours after precipitation events with a sustained duration of 30 minutes or more at a National Weather Service estimated intensity of more than 0.75 inches per

hour, to ensure that runoff controls are in good working order. Any observed excessive slumping, erosion or movement of biosolids is to be corrected within 24 hours. Any ponding within or abutting the stored biosolids, that could either lead to runoff to nearby waterways, or produce objectionable odor at the site is to be corrected. Appropriate documentation of biosolids stockpile field checks shall be submitted with monthly reports.

d. Biosolids stored for greater than 45 days shall be re-tested prior to land application for fecal coliform, TKN, and NH_3 –N.

e. Following storage without liners, the residual biosolids remaining on the soil should be scraped and removed, the soil at the site shall be tilled to break up compaction, and the site should be cropped to take up nutrients.

f. The Division may specify further restrictions on field storage at any time it deems necessary.