**Section 391.404 Site Characteristics**

a) Sludge shall not be surface applied without incorporation to farm land having greater than 5% slope. If the slope does exceed 5%, surface application can be used providing the annual soil loss does not exceed 5 tons/acre as calculated by the Universal Soil Loss Equation found in the University of Illinois Cooperative Extension Service Circular, "Estimating your soil erosion losses with USLE", revised May 1980 or in USDA Agricultural Handbook #537, "Predicting Rainfall Erosion Losses", December 1978.

b) Sludge may be incorporated on lands having slopes up to eight percent, irrespective of soil loss. If the slope exceeds eight percent, incorporation methods may be used providing the annual soil loss does not exceed five tons per acre as calculated by the Universal Soil Loss Equation.

c) For sludge applied soils having the following infiltration rates as determined by standard percolation tests or from information contained in soil surveys, the listed minimum soil depth to the mean annual water table shall be adhered to:

1) Greater than 2 inches/hour – 10 feet;

2) Less than or equal to 2 inches/hour – 5 feet.

d) Unless otherwise allowed by Section 391.450, sludge applied land must have a background soil pH of 6.5 or greater or liming of the land is required prior to sludge application to raise the soil pH to a minimum of 6.5. Note that some liming techniques of the soil do not immediately raise the soil pH. Considerable time is usually required. Water treatment plant lime softening sludge may be used to raise the soil pH.

e) Pasture or hay ground that has received surface applied sludge shall not be harvested or used for livestock grazing for a period of at least one month after sludge application or until precipitation of sufficient duration and intensity has occurred and washed all sludge from the area of the plant which can be injested by an animal, whichever time period is greater.

f) Frozen ground which is not ice or snow covered and has a slope of 5% or less may be used for winter spreading providing a 200 feet grassy area exists between the sludge applied land and any surface water or potable water supply well.

g) In general, sludge application shall not be applied on ice or snow covered ground. Sludge may be applied on ice or snow covered ground during emergency situations pursuant to an Agency permit only under the following conditions:

1) The treatment plant site does not have adequate storage facilities or sufficient springtime application period and the effluent may cause violations of their NPDES limits;

2) Sludge application site shall not be fall plowed by mold board plow unless a 200 foot grassy area exists between the application site and any swale, waterway, surface water, or potable water supply well;

3) Slope of the application site does not exceed 5%;

4) Runoff control measures such as vegetative fence rows around the site, contour farming, terracing, catchment basins and buffer areas in the direction of surface runoff;

5) Site is isolated from habitation;

6) No landfill is accessible;

7) No feasible alternative is available;

8) Other alternatives will be pursued by the generator, as appropriate.

h) Sludge amended land shall have a crop grown and harvested according to normal agricultural practice. Normal agricultural practices may include fallow land, set-aside programs, pasture land or other similar agricultural uses. Application rates shall be based upon the nitrogen or phosphorus requirements for the crops grown taking into account the soil nutrient level determined by soil testing.

i) Horticultural, silvicultural, nursery, sod farm, highway median or right-of-way or other beneficial uses of sludge on land will be reviewed on a case-by-case determination. Conformance with other criteria contained in this Part shall be evaluated and incorporated in a management plan by the generator or user as appropriate for their particular case.

j) The following numbers correspond to soil type numbers identified on soil survey maps complied by the United States Department of Agriculture – Soil Conservation Service. These numbers identify soils which have characteristics such as steep slopes, shallow soil depth, saline content or a texture that may constrain their use for sludge application projects. Additional precautions such as incorporation, lower application rates or groundwater monitoring may be necessary for sludge application on these types of soils. This list may not include every soil type in the state that may constrain a sludge application project. The descriptions of all soil types identified on a soil survey map should be evaluated along with field observation and verification for determining the acceptability of certain sludge application areas. The following soil type numbers warrant additional consideration for determining what constraints are required for sludge application of these soil types:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 5 | 93 | 271 | 472 | 620 | 956 |
| 7 | 98 | 282 | 501 | 660 | 977 |
| 8 | 100 | 312 | 504 | 731 |  |
| 25 | 103 | 316 | 511 | 741 |  |
| 34 | 120 | 354 | 513 | 761 |  |
| 49 | 210 | 389 | 551 | 768 |  |
| 53 | 224 | 397 | 581 | 777 |  |
| 54 | 241 | 417 | 584 | 779 |  |
| 85 | 250 | 425 | 585 | 786 |  |
| 88 | 253 | 427 | 605 | 903 |  |
| 92 | 264 | 471 | 606 | 955 |  |