

# SEPTAGE REMOVAL AND DISPOSAL

## Part II

There are three options for septage disposal in Georgia: treatment at wastewater treatment plants, treatment at separate septage handling facilities, and direct land application. Disposal and treatment of septage at wastewater treatment plants and separate septage handling facilities are regulated by the Environmental Protection Division. Requirements for septage disposal by Direct Land Application are as follows:

### Direct Land Applications

The following guidelines for land application of domestic septage are established in a Memorandum of Understanding between the Environmental Protection Division of the Georgia Department of Natural Resources and the Division of Public Health of the Georgia Department of Human Resources (see appendix O-IV Septage Management in Georgia). These written guidelines are based on the Code of Federal Regulations Title 40, Part 503 established by the United States Environmental Protection Agency.

Disposal of domestic septage by land application shall only be applied to land with a low potential for public exposure. This is land that the public uses infrequently which includes but is not limited to, agriculture land, forests, and reclamation sites located in unpopulated areas. The two approved land application methods are subsurface application and surface spreading.

For land disposal, consideration shall be given to soil characteristics, seasonal groundwater levels, land use, climatological conditions, slope, storage requirements, crop management techniques, loading criteria, agricultural needs, and nitrogen and heavy metal loading limits. Provisions shall be made for surface and groundwater protection, monitoring and odor control and site security

1. Application Information Required – If land disposal for domestic septage is to be used, the following information shall be provided:
  - a. A plat of the property, with topography, showing the drainage characteristics of property including locations of streams, lakes, or other water courses and impoundments on or adjacent to the property; water supplies including individual and community wells within 500 feet of disposal area; all buildings and neighboring land uses within 500 feet of disposal area; disposal area boundaries, and location of all-weathered roadways to and from the disposal area.
  - b. Soil types and their distribution in disposal area.
  - c. Percolation test results, when deemed necessary by the department
  - d. Seasonal water table elevation and/or location of rock strata or other impervious strata.
  - e. An estimate of the maximum septage application in gallons per day
  - f. Vector attraction reduction method.
  - g. Method of securing disposal site.
  - h. Signature of property owner approving land application of septage.
2. Locations of Land Disposal Sites
  - a. Approval in writing shall be obtained from the Department of County Health department for each site at which a person plans to dispose of domestic septage.
  - b. Sandy soils overlaying an unconfined aquifer, which is used or may be used as a principal source of potable water shall not be utilized as land disposal sites for septage. An exception may be made when special studies by a soil hydrologist indicate acceptable separation distance between the point of septage application and the seasonal high water table can be achieved to prevent groundwater contamination.
  - c. Land disposal sites for surface application of septage shall not be located in the watershed of a reservoir or a stream extending from a reservoir which is upstream of an intake for drinking water supply.
  - d. Sites shall be well drained and are not to be used where soil surveys, soil studies, soil types, areas of Karst, or other geological data indicates the existence of soil conditions which would preclude safe and proper disposal.
  - e. Land disposal sites shall not be located within 300 feet of an individual water supply source.
  - f. Land disposal sites shall not be located within 300 feet of a public water supply well, or residence, or other facility used or frequented by the public.
  - g. No land disposal site shall be located within 300 feet of any water impoundment, lake, stream, pond, reservoir, marsh, sinkhole, coastal waters, or any permanent or intermittent waterbody considered waters of the State.
  - h. Disposal sites with slopes exceeding 15% are considered unsuitable for land disposal of septage.
3. Management of Land Disposal Sites
  - a. Each land disposal site entrance shall be posted with “No Trespassing” signs, identified as a land application disposal site for domestic septage, and facilities should be fenced or other means of preventing access implemented.
  - b. No industrial, solid, or hazardous wastes shall be deposited on the site.

- c. The pH of the soil/septage mixture is to be maintained at 6.5 or greater at all times.
  - d. The pH of the soil in the land disposal area is not to go below 6.5 as measured by annual soil tests.
  - e. The annual cadmium (Cd) levels are not to exceed 0.5 Kg/Hectare/ year. The following formula can be used to convert ppm to Kg/Hectare:  $\text{ppm} \times 1.12 = \text{Kg} / \text{Hectare}$ .
4. Pathogen Control Management
- The following management practices, found in 40 CFR Part 503.32 (b) (5), must be met for compliance with pathogen control requirements:
- a. Septage shall not be applied to any portion of a site that is within 300 feet of any lake, stream, pond, reservoir, or any permanent or intermittent waterbody considered waters of the state.
  - b. Food crops with harvested parts that touch the land surface shall not be harvested for 14 months after septage application.
  - c. Food crops with harvested parts that develop above the land surface, feed crops, or fiber crops, shall not be harvested for 30 days after application of septage
  - d. Food crops with harvested parts below the land surface shall not be harvested for 38 months after application of septage.
  - e. Animals shall not be allowed to graze on the land for 30 days after application of septage.
  - f. Turf grown on land where septage is applied shall not be harvested for 1 year after application of septage.
  - g. Public access shall be restricted for 30 days after application of septage.
5. Vector Reduction Management
- The following management practices, found in 40 CFR Part 503.33, must be met for compliance with vector reduction requirements.
- a. Septage shall be injected below the surface of the land and no significant amount of septage shall be present on the land surface within one hour after the septage is injected. Injection may be accomplished by any device(s) that places the septage beneath the soil surface in a narrow trench at a depth of no greater than 18 inches and promptly replaces the cover soil in the same action of trenching and placing septage. Excavation of a trench followed by placement of septage and later covering of the trench is not considered injection.
  - b. Septage applied to the surface of the land shall be incorporated into the soil within six hours after septage application or
  - c. The pH of domestic septage shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 minutes. Septage is to be applied in a manner, which will prevent any ponding or standing of liquid on the land surface twenty-four (24) hours after application. Note: Each container of domestic septage must be monitored for compliance with 503.33 (b) (12).
6. Application Rate
- The annual application rate for septage applied to a land application site shall not exceed 40,000 gallons per acre per year. The septage must be spread or injected as evenly as possible over the entire acreage where the crop or vegetation is grown. This rate is calculated assuming a value of 100 pounds per acre per year of nitrogen required by the crop or vegetation grown on the land. The formula is found as equation 1 in 40 CFR.13 (c).
7. Record Keeping
- Individuals involved in land application of domestic septage shall maintain the following information for 5 years and that information shall be available for inspection by either the Department of Human Resources, Division of Public Health, County Health Department, or the Environmental Protection Division.
- a. The location by either street address or latitude and longitude, of each site on which domestic septage is applied.
  - b. The number of acres of each site on which domestic septage is applied.
  - c. The crop or vegetation grown on each site
  - d. The rate in gallons per acre per year at which septage is applied to each site
  - e. The following certification statement: "I certify, under penalty of law, that the pathogen requirements in section 503.32(c) (1) and the vector attraction requirements in section 503.33 (b)(9) or (b)(10) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine or imprisonment."
  - f. A description of how management requirements in section 4 for pathogens and vector attraction reduction requirements in section 5 above are met.
  - g. The name of the company and signature of the person who applied the septage.

8. Compliance  
Compliance with management practices, vector attraction practices, and application rates may be determined by review of records required by Section 7.
9. Septage Holding Facilities  
It is necessary that all septage land disposal systems have an alternative method for the temporary holding of septage during periods of adverse weather, and such systems shall meet the following requirements:
  - a. No overflow or leakage of septage may be allowed from the system onto the ground surface, into surface waters or the groundwater table;
  - b. Odors from such systems are to be controlled at all times;
  - c. Septage is to be removed from the holding facility to the land disposal system as soon as weather and soil conditions permit.
10. Surface (Land) Application  
Surface application is a frequently used septage, disposal method, but as with any surface application technique, some nitrogen (N) loss occurs through ammonia volatilization. Consideration should be given to intermediate holding facilities before application to the land. Storage is necessary just prior to or during periods of precipitation in order to prevent run off of contaminated water. In winter months, land application should be limited to non-frozen surfaces to prevent run off during thaws. Intermediate holding facilities are required for those seasonal periods when ground surfaces are frozen. Pathogen die-off during storage is also a factor in favor of using storage facilities. Pre-treatment, as defined in section 5, may be required to avoid odors and meet vector attraction reduction requirements.
11. Subsurface Application  
Subsurface applications techniques include plow furrow cover (PFC), subsurface injection (SSI), and terreator injection, which is a patented device for subsurface injection. Placement in trenches and lagoons are considered burial practices and are not approved.  
Soil incorporation techniques offer better odor and vector control than surface spreading techniques. Additionally, the likelihood of inadvertent pathogen contamination to humans is greatly reduced. Disadvantages, include full incorporation of all nitrogen, since ammonia volatilization is eliminated, which reduces any Nitrogen loading safety factor from ammonia loss in surface spreading. An approved storage facility is required. A resting period of one to two weeks is required before equipment can be driven over waste incorporated land.