

Septage Management Plan Requirements For Land Disposal of Septage

Tier 1 Operation (Covered under GAG620000 General Permit)

The Georgia Environmental Protection Division (EPD) issued a general permit on June 30, 2014. This permit regulates the land application of domestic septage from Tier 1 operations, which are defined as a “land disposal sites that receive and land apply septic tank waste from a single permitted septic tank pumping and hauling business.”

Refer to Georgia Department of Natural Resources Rules (Rules), Chapter 391-3-6-.23 “Land Disposal of Septage” for the definition of domestic septage and all requirements for the land disposal of septage. The EPD document entitled “*Guidelines for Land Application of Domestic Septage at Agronomic Rates*” (also referred to as the “Septage Guidelines”) provides specific operational guidance for septage land application sites and cross references the related elements of a Septage Management Plan. A Septage Management Plan (or SMP) is a detailed plan of operation for the land disposal of septage and is required by Rule 391-3-6-.23. Besides being a part of the required application materials, a comprehensive SMP is integral to the proper operation of a land application site and is necessary to ensure that septage is applied safely and at agronomic rates.

This document supplements the Septage Guidelines. It includes a SMP preparation and review “checklist” and detailed descriptions of the items to be included in an SMP that is submitted to EPD for review and approval. The detailed descriptions of all required SMP elements follow the checklist.

Septage Management Plan (SMP) Elements Checklist

The following checklist will be used during EPD review of SMPs and it should be used when preparing the SMP to make sure that all of the information required below has been included. Be sure to provide all of the required items to be included along with the Notice of Intent (NOI) form for EPD coverage under the General Permit GAG620000.

The following information shall be provided in a Septage Management Plan:

1. Maps – Aerial/vicinity map, site layout map and topographic map with 2-foot contour.
2. Soils Information – Soil survey map and soil series description (name, texture, permeability, slope, drainage, depth to seasonal groundwater, erodibility, etc.)
3. Soil Test Results – Soil fertility test report and nutrient recommendations (completed within the last six months).
4. Septage Analysis Results – Laboratory results of at least one septage sample (completed within the last six months).
5. Pathogen Control and Vector Attraction Reduction – Description of the management practices at the site to meet the vector attraction reduction and pathogen control requirements in accordance with 391-3-6-.23.
6. Quantity of Septage to be Land Applied and Rationale (With Calculations) – Cropping plan and quantity of septage to be applied annually at agronomic rates.
7. Previous Land Use - Provide information regarding the previous use(s) of the land application site. Indicate if biosolids have ever been land applied to any portion of the proposed land application site.
8. Future Land Use – State the future use of the land.
9. Ownership Statement and Notarized Letter of Agreement (if required) – Notarized letter of agreement between the applicant and the site owner(s) allowing for the pretreatment of septage and the land application of septage on the site(s).
10. Description of Methods Used to Restrict Access – Fencing or other means of restricting public access to the site is required. Describe how public access to the site will be restricted. “No Trespassing” and facility identification signs are required to be posted.
11. Facility Process Flow Diagram - Provide a process flow diagram in addition to the site layout map of the facility (see 1. above). Note: You may use the same process flow diagram that is to be included with the NOI form.
12. Onsite Storage Details – Description of any septage holding facilities.

Septage Management Plan (SMP) Elements Checklist (cont'd)

13. Description of Pretreatment Process – Description of the pretreatment process to be used at the land disposal site (screening and stabilization).
14. Description of Operational Procedures and Method of Land Applying the Septage
 - a. Truck access, offloading, and loading procedures
 - b. How material will be verified as being only “domestic septage”
 - c. How septage will be injected or incorporated
 - d. How the land application of septage will be tracked to ensure that it is done according to agronomic rates
 - e. How the land application of septage will be tracked to ensure that it does not exceed pollutant loading rates
15. Groundwater Well Map (if required) – Prepare a map for any groundwater monitoring that may be required by EPD at the land application site.
16. Monitoring, Analysis and Record Keeping – Details on laboratory facilities that are to be used for analysis. Provide the location where required records related to land application will be maintained.
17. Closure and Cleanup - As detailed in Rule 391-3-6-.23(4)(c) this information is to be included as part of the SMP for Tier 1 Operations.
18. Certification and Signature of the Applicant – Contact information for applicant will need to be provided along with information for whoever prepared the SMP.

Detailed Description of the Required Elements of a Septage Management Plan

The information below expands upon the checklist in the previous section of this document. When preparing the SMP you should include the same version of any documents submitted along with the NOI (i.e. facility process flow diagram, etc.).

1. Maps.

Aerial/vicinity map, detailed site map and topographic map with 2-foot contours must be provided to show the following information:

- a. General location of the proposed land application site(s);
- b. Property boundaries of the land application site(s) showing buffers for application site(s) and distances to adjacent features (See the applicable section of the Septage Guidelines for buffer criteria);
- c. All roads, both adjacent and internal to the site;
- d. 100-year flood plain elevation and contour, and documentation as to how it was determined that these sites were not within the 100-year flood plain;
- e. Location of residences and other buildings on or within 1,000 feet of the proposed site(s);
- f. Location of any water supply wells, public and private, on-site or within 1,000 feet of the proposed site(s);
- g. All surface water (ponds, lakes, rivers, streams, etc.);
- h. Surface water intakes downstream of the land application sites;
- i. Natural or manmade drainage areas, including intermittent streams/ditches;
- j. All proposed access areas to the site and location of fencing (or other means to control public access);
- k. Total and useable land application acreage (excluding buffer areas and unsuitable soils) of the site;
- l. GPS coordinates of the property corners; and
- m. Location of the pretreatment system and the pretreatment system's relationship to the land application site(s) and property boundaries. Indicate the location of any inclement-weather storage tanks.

2. Soils Information.

Provide a map showing the distribution of soil types on the existing or proposed application site(s). Attach a description of the soil series identified on the map, including texture, permeability (absorption rate for each horizon), slope, drainage, depth to seasonal high water table, and erodibility as outlined in the Natural Resource Conservation Service (NRCS) soil survey issued for that particular county. Note that the seasonal high groundwater table must be a minimum of 42 inches from the undisturbed ground surface.

Where soil maps are not available, test pits or auger borings shall be used to describe the soil characteristics and identify the soil textural class. The soils investigation shall be performed by a Georgia professional engineer, professional geologist, or certified soils scientist, and shall bear the seal (if appropriate) and signature of the responsible individual in charge.

3. Soil Test Results.

A standard soil fertility test shall be performed using soil sample(s) taken from the land site where septage waste is applied or will be applied.

In order to perform the soil analysis, it is important to take a composite soil sample that is representative of the location. Basic parameters in a soil sample report should include:

- Soil pH.
- Soil nutrient levels of nitrogen, phosphorus, potassium, magnesium, calcium, manganese and zinc reported in parts per million (ppm) or pounds per acres (lbs/acre).
- Cation Exchange Capacity (CEC), usually reported in meq/100 g.
- Base saturation (usually reported as percent of exchangeable bases).
- Recommendations for lime application to maximize crop production.
- Recommendations for nitrogen, phosphorus and potassium application as fertilizer to maximize crop production.

Enclose a copy of the soil fertility report (completed within the last six months). For the soil analysis, a minimum of one (1) composite soil sample for each 15 acres must be provided. A composite soil sample should consist of a minimum of 15 soil cores. The soil cores should be collected randomly over the sample area and spaced out to get accurate soils representation. If an area contains more than one soil type, collect a composite sample from each soil type. The soil analysis must be performed by a commercial environmental laboratory that is approved under EPD's Rules for Commercial Environmental Laboratories. The laboratory results must be submitted on the laboratory's letterhead, and the specific analytical method must be shown. A copy of the lab data sheets may also be required, if requested by EPD.

4. Septage Analytical Results.

Provide the laboratory results from at least one representative sample of septage. Include a summary table (see Table 1, attached) with the laboratory analysis. The testing must be performed by a certified wastewater laboratory or in a commercial environmental laboratory that is approved under EPD's Rules for Commercial Environmental Laboratories. A copy of the lab data sheets may also be required, if requested by EPD.

5. Methods of Vector Attraction Reduction and Pathogen Control.

Specify the means to be used to demonstrate compliance with the pathogen control and vector attraction reduction requirements (see Rule 391-3-6-.23 (8) and (9)). Provide supporting documentation for the management practices utilized.

- a. For vector attraction reduction management, domestic septage must be injected below the surface of the land or incorporated into the soil within 6 hours after septage application. Describe how one (or both) of these methods will be performed.
- b. For pathogen control the following management practices must be met for compliance with pathogen control requirements. Describe all of the practices to be used and describe specifically how pathogen control will be achieved. You may use more than one practice depending on cover crops and site-specific needs.
 - i. Food crops with harvested parts that touch the land surface or that develop above the land surface shall not be harvested for fourteen (14) months after domestic septage application.
 - ii. Feed crops or fiber crops shall not be harvested for thirty (30) days after domestic septage application.
 - iii. Food crops with harvested parts below the land surface shall not be harvested for thirty-eight (38) months after domestic septage application.
 - iv. Turf grown on land where domestic septage is applied shall not be harvested for one (1) year after domestic septage application.
 - v. Animals shall not be allowed to graze on the land for thirty (30) days after the application of domestic septage.
 - vi. Public access shall be restricted for thirty (30) days after the application of domestic septage.

6. Quantity of Septage to Be Applied Each Year.

Provide the estimated total volume of septage to be applied annually.

Include planting and harvesting information for specific crop types and calculations of the agronomic rates required for those crops. (Refer to the Septage Guidelines for more information on crop planning and calculating agronomic rates). A maximum

of 40,000 gallons per acre per year of septage is allowed to be land applied. For application of liquid septage, the quantity should be reported in gallons per acre per year with the percent solids being specified. For dewatered septage, the quantity should be reported in pounds per acre per year on a dry weight basis with the percent solids being specified. In no case may septage be applied in a manner that will allow it to run off-site or run into the waters of the State.

7. Previous Land Use Statement.

Indicate if municipal biosolids, industrial biosolids, solid waste, chicken litter, etc., have ever been applied/disposed of at this site. If so, provide the date, quantity and source of the most recent application(s).

8. Future Land Use Statement.

State if the land will be used for grazing. If not, state the future use of the land.

9. Ownership Statement and Notarized Letter of Agreement (if required).

Unless the applicant owns the land application site(s), include a notarized letter of agreement between the applicant and the site owner(s) allowing for the land application of septage on the site(s). Include any applicable site restrictions. The address of the property and the contact name and phone numbers of both the applicant and the site owner(s) must be included in the letter.

10. Description of Methods Used to Restrict Access.

Provide a statement that the site(s) will be fenced and gated or explain the means that will be used to restrict access to the land application site(s) and the pretreatment facility. Remote agricultural land will not require fencing or gates. Note that as per Rule 391-3-6-.23(7)(e), No Trespassing signs identifying the area as a land disposal site are required to be posted at each site entrance. The sign shall include the name and address of the person engaging in the land disposal of septage and the site permit number (note: permit number to be provided by EPD).

11. Facility Process Flow Diagram.

Provide a process flow diagram and site layout of the facility. Note all processes and areas for handling septage from the time it is trucked in until it is land applied. Note: You may use the same process flow diagram that is to be submitted with the NOI form.

12. Description of Onsite Storage.

Describe the location, construction (materials), and size (dimensions and capacity in gallons) of any inclement-weather septage holding facilities. Describe odor control and spill containment. Note that septage may only be held on site for a maximum of 15 days during periods when it cannot be land applied due to inclement weather or when field conditions do not allow for application. Justification for holding tank

capacities may require the submission of pumping manifests in support of quantifying pumping business volume over a specified period of time. Provisions must be made to control odors at all time. Describe odor control technology of the proposed or existing equipment. Storage tanks and equipment must be permanently installed on appropriate and secure foundations. Piping must be firmly and permanently supported. Provide detailed information on the unloading, treatment, storage and offloading equipment. Address the unloading of septage to the treatment facility and the means provided to minimize spillage during unloading and transfer for land application.

13. Description of Pretreatment.

At a minimum, screening and lime stabilization is required as pretreatment to be provided at the land disposal site.

- a. Screening. Provide a 1/4-inch maximum screen size. Indicate how often solids removed during screening will be properly disposed of and where. Describe how and where screened solids will be stored prior to disposal. Provide a letter or other confirmation from a landfill that indicates they will accept the screenings.
- b. Lime stabilization. All septage must undergo stabilization within six hours of arrival at the facility. See the Septage Guidelines for more information on methods of lime stabilization. Describe how the septage will undergo stabilization and how and where lime used in the process will be stored.

14. Description of Operational Procedures and Method of Land Applying Septage

- a. Provide a description of truck access as well as offloading and loading procedures. Describe the method and means of transporting domestic septage from where it is removed from septic tanks septage to the land application operation. Include any associated Department of Public Health permit numbers and capacity volumes for any vehicles used for septage pumping and hauling. Also, describe how septage will be transported to the land application site(s) from the receiving and pretreatment area (e.g. trucked, pumped, etc.) and the distance to the site(s) from the pretreatment area. Indicate whether primary site access and internal roads are paved, gravel, or dirt.
- b. Provide a description of procedures to ensure that only domestic septage free from prohibited materials (grease trap, industrial, commercial or hazardous wastes) is being accepted at the operation.
- c. State whether the septage will be injected or incorporated, and provide specific details on the procedures used and methodology. Note the capacity and type of any equipment used. State how the septage will be distributed without compacting the soils of the application areas.
- d. Provide description of how the land application of septage will be tracked to

ensure that it is done according to agronomic rates and not in excess of the calendar year nitrogen requirements for the site(s). Be sure to include the information described in 6. above in the SMP, including information on cover crop types and nutrient requirements for those cover crops along with any agronomic rate calculations and data use dot determine those rates.

- e. Provide a description of how the land application of septage will be tracked to ensure that annual pollutant loading rates are not exceeded for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc.

15. Groundwater Monitoring Wells

Need for groundwater monitoring will be evaluated on a case by case basis. If groundwater monitoring is required by EPD at the land application site, EPD will require you to provide a map that includes numerical identification of all proposed groundwater monitoring wells and their location and defines the boundaries of the site(s). Subsurface geology and the direction of groundwater flow determine the placement and depth of the monitoring wells. If groundwater monitoring wells are required, a minimum of 1 upgradient and 3 downgradient wells will be required. Groundwater monitoring wells should be identified by the following symbols: Upgradient wells - U1, U2, U3, etc; midfield wells - M1, M2, M3 etc; downgradient wells - D1, D2, D3, etc. All monitoring wells must extend to sufficient depth to sample seasonal fluctuations of the unconfined water table. Monitoring wells must be provided with casings and screens. The casing must be backfilled and sealed to prevent the entry of surface water. This seal should include a concrete apron that slopes from the center to the edge surrounding the well at the surface. Monitoring wells must be numbered and locked.

16. Monitoring, Analysis and Record Keeping.

For all preliminary analyses required in conjunction with application for coverage under an EPD permit and for any analyses and record keeping required by a permit, provide the following:

- a. Name, address, and any certification numbers for labs used for soils testing and analysis.
- b. Name, address, and any certification numbers for labs used for septage testing and analysis.
- c. Name, address, and any certification numbers for labs used for groundwater or surface water testing and analysis.
- d. Location where sampling and testing results, operational records, and land application records for the permitted operation will be kept.
- e. Rule 39-1-3-6-.23(13) requires that operational records be maintained for agency inspection for a period of five (5) years.

17. Closure and Cleanup (Tier 1 operations).

As detailed in Rule 391-3-6-.23(4)(c), Tier 1 operations should include an identified section within the SMP specifying details for the cleanup and closure of the operation. Include the following:

- a. Process for removing any and all septage remaining in onsite holding tanks after land disposal operations cease and how proper disposal will be ensured. State the location where the septage is to be taken for proper disposal.
- b. Describe how and where any screenings remaining on site will be properly disposed.
- c. Describe how receiving, pretreatment, and land application areas, and any associated equipment, will be decommissioned and disposed of at closure.
- d. Describe methods to ensure that public access to any land application site(s) will remain restricted for the minimum time required for pathogen control after any land application has taken place.
- e. Detail how any required monitoring wells will be secured.

18. Certification and Signature of the Applicant.

The certification must be signed by the applicant, and must include the printed name of the applicant, their title, and the date of signature. Include the following:

“I certify under penalty of law that this document and all attachments were prepared under direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Include the following information in the SMP:

- Person submitting Septage Management Plan
- Organization (or Company)
- Area Code & Telephone Number
- Mailing Address
- Individual who prepared the Septage Management Plan (if different from the applicant)

Table 1: Septage Results

If results are reported by the laboratory in wet weight convert to dry weight using the following:

$$\% \text{ Dry Solids} / \% \text{ Wet Solids} = \text{“Factor”}$$

$$\text{“Factor”} \times \text{wet weight} = \text{dry weight}$$

Parameter	Pollutant Concentrations Wet Weight	Pollutant Concentrations Dry Weight
Arsenic, mg/kg		
Cadmium, mg/kg		
Copper, mg/kg		
Lead, mg/kg		
Mercury, mg/kg		
Chromium mg/kg		
Nickel, mg/kg		
Selenium, mg/kg		
Zinc, mg/kg		
Total Nitrogen, %		
Ammonia as N, %		
Total Kjeldahl Nitrogen, %		
Nitrate as N, %		
Total Volatile Solids, %		
Total Solids, %		
Total Suspended Solids, mg/L		
Total Phosphorus as P, %		
Total Potassium as K, %		
pH, standard units		