



AUTHORIZATION TO OPERATE A LAND TREATMENT SYSTEM

FOR THE

AGRICULTURAL UTILIZATION OF SLUDGE AND WASTE PRODUCTS

**Pursuant to the provisions of 7 Del. C., §6003**

Clean Delaware, LLC.  
P. O. Box 123  
Milton, Delaware 19968-0123

is hereby granted a permit to operate a land treatment system for:

- the agricultural utilization of Class B stabilized sludge generated in the treatment of wastewater in Delaware and other land treatable wastes approved by the Department of Natural Resources and Environmental Control; and,
- the agricultural utilization of lime stabilized septage and holding tank waste.

This permit is limited to the application of above materials to the application site(s) designated in this permit.

The application rates, monitoring requirements and other permit conditions are set forth in Parts I, II and III hereof.

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**Manager Name**, Program Manager  
Surface Water Discharges Section  
Division of Water  
Department Of Natural Resources  
and Environmental Control

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Date Signed

## Part I

### A. GENERAL DESCRIPTION OF OPERATION

The operation involves agricultural utilization of approved stabilized wastewater sludge from wastewater treatment facilities in Delaware and other approved land treatable wastes/residuals, as approved by the Department of Natural Resources and Environmental Control (e.g. brewery waste and grease trap waste), at agronomic rates onto the approved sites listed in this permit. In addition, this operation involves the transportation of approved septage, holding tank waste, and minor wastewater treatment facility sludge to the Milton Farm lime stabilization plant. After treatment in the lime stabilization plant, the aforementioned wastes may be applied onto Milton Farm fields one, two, and four in accordance with the conditions in this permit.

Stabilized sludge, septage, and wastes shall be delivered to the approved sites in accordance with a valid Delaware waste transporters permit. Sludge and/or waste will be applied either by means of surface application with or without incorporation or by subsurface injection. Class B septage shall be surface applied without incorporation in accordance with Part I, D.1 and Part III, A. of this permit.

All sludge (septage is included herein as sludge) and any waste products containing pathogenic agents shall be stabilized in accordance with a process cited in Part III, (B), of the Guidance and Regulations Governing The Land Treatment of Wastes.

**B. SITE LOCATIONS:**

**1. The Milton Farm Site Description:**

This site consists of approximately 170 acres of land, suitable for land application, located east of Route 30 (Isaacs Road) and north of Route 16 (Milton-Ellendale Highway) approximately 1 mile northwest of Milton, Delaware.

Tax parcel numbers: 2-35-14.00-1.00, 2-35-14.00-2.00, 2-35-14.00-3.00, 2-35-14.00-60.00



\* Application areas are approximate. Refer to PDR for specific application areas and field acreages. Buffer zones as specified in Part I, D.1 of this permit shall be maintained when applying materials regulated under this permit.

2. **The Harbeson Site:** This site consists of approximately 24 acres of land, suitable for land application, located on the south side of Route 9, approximately 500 feet east of Route 5 in Harbeson, Delaware.

Tax parcel number: 2-35-30.00-62.00



\* Application areas are approximate. Refer to PDR for specific application areas and field acreages. Buffer zones as specified in Part I, D.1 of this permit shall be maintained when applying materials regulated under this permit.



**C. REGULATORY AND SUPPORTING DOCUMENTS:**

The land treatment operations shall be conducted in accordance with the following documents:

1. The Department's Guidance and Regulations Governing the Land Treatment of Wastes; Part III, (B), the Land Treatment of Sludges and Sludge Products (revised October 1999) as amended;
2. The Department's Guidance and Regulations Governing the Land Treatment of Wastes; Part V, the Land Treatment of Waste Products;
3. Title 40 Code of Federal Regulations, Part 503, Standards for the Use and Disposal of Sewage Sludge;
4. Request for transfer of ownership from Clean Delaware Incorporated to Service Energy, Incorporated dated August 13, 2004. The name of the operating subsidiary under Service Energy is Clean Delaware LLC;
5. The list of Department approved products for land application at Clean Delaware, LLC. dated October 11, 2016, as modified;
6. The request to renew state permit number AGU 1202-S-03 dated June 30, 2016;
7. The revised project development report dated November 16, 2016;
8. Updated acreages as surveyed by Scaled Engineering (project # CLND003) dated June 2019 for the Milton Farm fields 1-5; and,
9. The letter of intent to renew State Permit Number AGU 1702-S-03 dated June 2, 2021 and the renewal package received November 23, 2021 including revisions though February 21, 2022.

**D. SLUDGE, SEPTAGE AND, WASTE APPLICATION LIMITATIONS**

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to operate land treatment sites as identified in this permit for the application of Department approved stabilized sludge, septage, and/or wastes at agronomic rates. The timing of sludge application to the site, as well as the quantity and quality of sludge to be land applied shall be specified in a Nutrient Management Plan (NMP) and be in accordance with the limitations below.
2. Sludge may be applied, up to a rate to meet but the rate shall not exceed the Plant Available Nitrogen (PAN) requirement for the crop(s) grown, as specified in Part III, (B), Section 131.1 of the Guidance and Regulations Governing the Land Treatment of Wastes, Land Treatment of Sludges and Sludge Products. The calculated PAN application rates shall also include any residual mineralized nitrogen from previous sludge application. Nutrient uptake from crops shall only be credited if the crop is harvested.
3. A Delaware Department of Agriculture (DDA) Certified Nutrient Consultant shall calculate nutrient loading recommendations. The certified nutrient consultant may utilize their discretion when determining which samples are the most representative of the material to be applied onto a specific field.
4. Supplemental additions of fertilizers (i.e., commercial fertilizer, manure, Class A biosolids, etc.) shall be limited to amounts necessary to meet crop needs using the written recommendations of a Delaware Certified Nutrient Consultant for the specified crop and anticipated yield. The total amount of PAN applied shall not exceed the amounts specified for the crop specified in the NMP.
5. When any of the limits specified above have been achieved, no additional sludge, septage, and/or waste may be applied to the site unless a supplementary written approval has been issued by the Department.
6. Application onto land without an established crop shall be limited to one (1) month or less prior to planting. Once a field has received up to the nitrogen loading rate in the NMP, within one (1) month (unless a crop is already established) the field shall be planted with an appropriate crop as specified in the NMP. Should weather conditions not allow for crop germination, an appropriate crop shall be planted as soon as practicable. Failure to plant a field within the timeframes specified above may result in the Department evoking provisions listed in Part II B. 6 of this permit.
7. Application of waste onto Milton Farm fields 6 and 7 shall be limited to April 1 through October 15 and shall not include any product containing sanitary waste.

8. Fields with “high” phosphorus soil levels as defined by Title 3, Chapter 22 of the Delaware Code (the Nutrient Management Law) and the Delaware Nutrient Management Commission (greater than 150 FIV) must have the phosphorus site index (PSI) calculated. Fields with PSI results above “low” levels (greater than 50) must submit the PSI results and a phosphorus management plan to the Department, for review and approval, within sixty (60) days of receipt of the soil analytical data. The phosphorus management plan must demonstrate steps that will be taken to reduce the PSI or phosphorus levels in the soil. Fields with “high” phosphorus soil levels must continue to have the PSI calculated at least once every three years until the phosphorus level in the soil is no longer “high”. Failure to implement a phosphorous management plan, when applicable, may result in the Department revoking or modifying this permit as outlined in Part II, B.6 of this permit.
9. Septage supernatant application rates are limited to 270,000 gallons per acre per year or the nitrogen requirement of the crop (whichever is reached first). Without written approval, septage supernatant may only be applied onto approved portions of fields one (1), two (2), and four (4). Fields that receive septage during a calendar year shall not be utilized for sludge or waste application in the same year. Additionally, an appropriate continual crop shall be established prior to the application of septage during a calendar year. Septage supernatant hydraulic loading rates shall not exceed 1.0 inches per acre per week, nor shall the instantaneous hydraulic loading rate exceed 0.25 inches per acre per hour. Septage shall be applied evenly amongst spray zones for each approved field.
10. Sludge, septage and/or waste shall only be applied when the water table depth is at least 20 inches below the maximum depth of tillage as defined in Part I, K. 3 and pursuant to Part III, (B), of the Guidance and Regulations Governing the Land Treatment of Wastes. Should water-level readings indicate that areas of the application field have or likely have a water table that is within 20 inches of the ground surface, sludge application in these areas must cease immediately and be discontinued until the limiting situation has passed.
11. A copy of this permit shall be kept in all land application equipment any time application of materials regulated under this permit occurs and shall be presented to the Department upon request.
12. Only sludge and septage (and waste containing pathogenic agents) which have been treated by a Process to Significantly Reduce Pathogens (PSRP), as defined in Part III, (B), of the Guidance and Regulations Governing the Land Treatment of Wastes, shall be applied to any of the land treatment sites.
13. For lime stabilized septage, PSRP and vector attraction reduction is achieved when a sufficient amount of lime is added to the septage to reach and maintain a pH of 12 S.U. or greater for a minimum of 2 hours. If at any time

during the lime stabilization process, the pH of the septage falls below 12.0 S.U., the permittee shall add additional lime to raise the pH of the septage to a value of 12.0 S.U. or greater for two full hours. Additionally, the pH of the septage being applied to the field shall be monitored at minimum daily each day application occurs. Only stabilized septage with a pH of 10.5 S.U. or above may be applied under this permit.

14. A sufficient amount of lime to adjust the soil pH to a value of 6.2 or above shall be applied to the site prior to sludge and/or septage application.
15. Sludge and/or septage may not be applied when the ground is frozen, saturated or covered with snow or during periods of rain or run-off. Waste application is forbidden during periods of active rain, onto excessively wet ground or onto snow in excess of 2 inches cover. Application of waste to frozen ground may be made provided that no runoff from the application area occurs.
16. Should short term field staging (7 days or less) of sludge or approved wastes be necessary, stockpiling may occur only on an impervious surface and the material shall be under cover to prevent runoff onto the surrounding soil. Additionally, the staging site shall be located at least 500 feet from any public road or private residence(s). Staging beyond 7 days requires written Department approval.
17. Sludge, septage, and waste shall be applied so that the application is uniform.
18. Surface applied sludge (excluding liquids applied from the lime stabilization plant) shall be incorporated into the soil within 6 hours of surface application. Surface applied waste is not required to be incorporated into the soil provided that the waste is applied onto an established crop such as millet, wheat, or another appropriate crop. If objectionable odors, vectors, or other nuisance conditions from land application activities regulated under this permit impact neighboring properties, the Department may require the addition of lime (or another odor mitigating substance) to the land application fields after application of materials regulated by this permit and/or require lime to be added to these materials prior to land application. In addition, if the Department determines nuisance vectors from land application activities are affecting neighbors, pest management practices shall be immediately implemented by the utilization of appropriate pesticides in accordance with State and Federal requirements. The Department may require additional odor, vector, and/or nuisance control measures to be taken for any sludge application under this permit, if deemed necessary.



19. After application of Class B Sludge:

- a. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.
- b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for four months or longer prior to incorporation into the soil.
- c. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil.
- d. Feed crops and fiber crops shall not be harvested for 30 days after application of sewage sludge.
- e. Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.
- f. Public access to the sludge and septage application area must be controlled for at least twelve (12) months after application, unless sludge and/or septage has been treated by an approved process to further reduce pathogens (PFRP).

20. The following minimum application setback distances shall be maintained during sludge and waste application:

	Surface Application	Surface Injection
Occupied off-site dwelling	200 feet	100 feet
Occupied on-site dwelling	100 feet	50 feet
Potable wells	100 feet	100 feet
Non-potable wells	25 feet	25 feet
Public roads	25 feet	15 feet
Property lines	50 feet	25 feet
Streams, tidal waters, or other water bodies	50 feet	33 feet
Drainage ditches	25 feet	25 feet

21. Additional Setbacks for the Utilization of Septage Application Equipment that May Create Aerosols:

- a. The following more conservative setbacks distances shall be maintained at all times during the application of treated septage applied utilizing hose reels or other spray application equipment. Application setbacks shall be from the wetted application perimeter.

	Minimum Setback Distance
Public roads	150 feet
Property lines of off-site properties with occupied dwellings	500 feet
Any on-site occupied dwelling	500 feet*
Streams, tidal waters, or other water bodies	100 feet

\* Buffer zones may be reduced from 500 feet from the nearest on-site occupied building, located on the tax parcel numbers listed in Part I, B. "Site Locations" of this permit, with written permission from the owner. Additionally, written permission from a property tenant, if applicable, is required. Under no circumstances shall the application of septage and other approved liquid wastes applied utilizing hose reels or other spray equipment be less than 200 feet from an occupied on-site dwelling.

- b. The permittee may be required to increase buffer zones from the distances listed above as determined by the Department.
22. An anemometer and windsock shall be in place at the Milton Farm at all times. The permittee shall not apply septage at any time sustained wind exceeds 10 miles per hour (mph) or wind gusts exceed 15 mph. It is the permittee's responsibility to ensure that any aerosols created by land application activities do not carry beyond the property boundaries of the Milton Farm.
23. No sludge, septage and/or waste shall be applied if sample analysis yields pollutant concentrations in excess of the following values:

Arsenic	41 mg/kg	Cadmium	39 mg/kg	Chromium	1200 mg/kg
Copper	1500 mg/kg	Lead	300 mg/kg	Mercury	17 mg/kg
Molybdenum	75 mg/kg	Nickel	420 mg/kg	Selenium	36 mg/kg
Zinc	2800 mg/kg	PCB	5 mg/kg	-	-

## E. GROUNDWATER LIMITATIONS

Application of sludge to the designated fields shall not cause an exceedance of the applicable Federal or State drinking water standards in downgradient monitoring wells. If down-gradient potable water supply wells (public or private) are impacted above applicable Federal or State drinking water standards from permitted land application activities, the permittee shall be required to provide a free Department approved alternative water supply to the affected parties. For compliance with this provision, levels of nitrate migrating on-site from upgradient sources will be considered.

## F. MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through the expiration date the permittee is authorized to apply sludge, septage and/or waste at agronomic rates to the application sites listed in this permit. Such applications shall be monitored by the permittee as specified below.

### 1. LIME STABILIZED SEPTAGE

Parameter	Unit Measurement	Minimum Frequency	Sample Type
Moisture Content	percent	Quarterly	Composite
Total Nitrogen as N (Moist & Dried)	percent	Quarterly	Composite
Organic Nitrogen as N (Moist & Dried)	percent	Quarterly	Composite
Ammonium and Nitrate Nitrogen as N (Moist & Dried)	percent	Quarterly	Composite
pH	S.U.	Quarterly	Composite
Volatile Solids	percent	Quarterly	Composite
Phosphorus as P (dry weight basis)	percent	Quarterly	Composite
Potassium (dry weight basis)	percent	Quarterly	Composite
Arsenic (dry weight basis)	mg/kg	Annually	Composite
Cadmium (dry weight basis)	mg/kg	Annually	Composite
Chromium (dry weight basis)	mg/kg	Annually	Composite
Copper (dry weight basis)	mg/kg	Annually	Composite
Lead (dry weight basis)	mg/kg	Annually	Composite
Mercury (dry weight basis)	mg/kg	Annually	Composite
Molybdenum (dry weight basis)	mg/kg	Annually	Composite
Nickel (dry weight basis)	mg/kg	Annually	Composite
Selenium (dry weight basis)	mg/kg	Annually	Composite
Zinc (dry weight basis)	mg/kg	Annually	Composite
Fecal Coliform (MPN dry wt basis)	colonies/g	Annually	Composite
Calcium (dry weight basis)	mg/kg	Annually	Composite
Magnesium (dry weight basis)	mg/kg	Annually	Composite
Sodium (dry weight basis)	mg/kg	Annually	Composite

Lime stabilized septage samples shall be collected at the following location: the lime stabilized septage storage tank after mixing. All septage samples shall be taken and analyzed in accordance with Part III (B), Section 151 of the Department's Guidance and Regulations Governing the Land Treatment of Wastes. See Part I, J. for reporting requirements.

The Department may modify the sampling frequency based upon review of continuing or additional analyses.

**2. OTHER STABILIZED SLUDGES (Including sludge solids from septage)**

Parameter	Unit Measurement	Minimum Frequency	Sample Type
Moisture Content	percent	Quarterly*	Composite
Total Nitrogen as N (dry weight)	percent	Quarterly*	Composite
Organic Nitrogen as N (dry weight)	percent	Quarterly*	Composite
Nitrate Nitrogen as N (dry weight)	percent	Quarterly*	Composite
Ammonium Nitrogen as N (dry weight)	percent	Quarterly*	Composite
Phosphorus as P (dry weight basis)	percent	Quarterly*	Composite
Potassium (dry weight basis)	percent	Quarterly*	Composite
pH	S.U.	Annually	Composite
Volatile Solids	percent	Annually	Composite
Arsenic (dry weight basis)	mg/kg	Annually ^	Composite
Cadmium (dry weight basis)	mg/kg	Annually ^	Composite
Chromium (dry weight basis)	mg/kg	Annually ^	Composite
Copper (dry weight basis)	mg/kg	Annually ^	Composite
Lead (dry weight basis)	mg/kg	Annually ^	Composite
Mercury (dry weight basis)	mg/kg	Annually ^	Composite
Molybdenum (dry weight basis)	mg/kg	Annually ^	Composite
Nickel (dry weight basis)	mg/kg	Annually ^	Composite
Selenium (dry weight basis)	mg/kg	Annually ^	Composite
Zinc (dry weight basis)	mg/kg	Annually ^	Composite
Fecal Coliform (MPN dry wt basis)	colonies/g	Annually	Composite
Calcium (dry weight basis)	mg/kg	Annually	Composite
Magnesium (dry weight basis)	mg/kg	Annually	Composite
PCB's (dry weight basis)	mg/kg	Annually	Composite
Sodium (dry weight basis)	mg/kg	Annually	Composite
Priority Pollutant Scan	----- ---	Every 5 Years	Composite

All sludge samples shall be taken and analyzed in accordance with Part III (B), Section 151 of the Department's Guidance and Regulations Governing the Land Treatment of Wastes. See Part I, J. for reporting requirements. All analytical results must be available at least 15 days or more before application occurs.

\* Lagoon clean out, septage solids, or bulk biosolids application occurring less than frequency than on a quarterly basis shall have at minimum three (3) composite samples collected and analyzed prior to each land application event.

^ More frequent sampling is required if the sludge generator produces more than 290 dry metric tons of sludge per year (on a dry weight basis). See Section 137.2.1 of Part III, B. of the Department's Guidance and Regulations Governing the Land Treatment of Wastes for applicable sampling frequencies.

The Department may modify the sampling frequency based upon review of continuing or additional analyses.

**NOTE:** A list of the 126 priority pollutants can be found in 40 CFR, Part 423, Appendix A.

### 3. WASTES

<u>Parameter</u>	<u>Measurement</u>	<u>Sampling Frequency</u>	<u>Sample Type</u>
Moisture content	percent	Quarterly*	Composite
Total Nitrogen as N (dry weight basis)	percent	Quarterly*	Composite
Organic Nitrogen as N (dry weight basis)	percent	Quarterly*	Composite
Ammonium and Nitrate Nitrogen as N (dry weight basis)	percent	Quarterly*	Composite
Phosphorus (dry weight basis)	percent	Quarterly*	Composite
Potassium (dry weight basis)	mg/kg	Quarterly*	Composite
pH	S.U.	Annually	Composite
Arsenic (dry weight basis)	mg/kg	Every 5 Years	Composite
Cadmium (dry weight basis)	mg/kg	Every 5 Years	Composite
Chromium (dry weight basis)	mg/kg	Every 5 Years	Composite
Copper (dry weight basis)	mg/kg	Every 5 Years	Composite
Iron (dry weight basis)	mg/kg	Every 5 Years	Composite
Lead (dry weight basis)	mg/kg	Every 5 Years	Composite
Mercury (dry weight basis)	mg/kg	Every 5 Years	Composite
Molybdenum (dry weight basis)	mg/kg	Every 5 Years	Composite
Nickel (dry weight basis)	mg/kg	Every 5 Years	Composite
Selenium (dry weight basis)	mg/kg	Every 5 Years	Composite
Zinc (dry weight basis)	mg/kg	Every 5 Years	Composite

\* Lagoon clean out or bulk waste application occurring less frequency than a quarterly basis shall have at minimum three (3) composite samples collected and analyzed prior to each land application event.

The Department may modify the sampling frequency based upon review of continuing or additional analyses.



#### 4. **SLUDGE STABILIZATION PROCESS MONITORING**

- a. Domestic septage shall be lime stabilized to meet Class B (PSRP) requirements, as set forth in Part III, (B) of the Guidance and Regulations Governing the Land Treatment of Wastes, prior to land application. PSRP requirements have been met when a sufficient amount of lime has been added to raise the pH of the septage to 12 S.U., throughout the batch, for a minimum of two (2) hours. pH values are to be taken to the nearest 1/10<sup>th</sup> standard unit and logged every 30 minutes during the two-hour lime stabilization process. See Part I, J for reporting requirements.
- b. Other Sludges and Wastes Containing Pathogenic Agents

All sludge prepared for land application at the sites approved in this permit must meet the requirements in Part III, Section 133 of the Guidance and Regulations Governing the Land Treatment of Wastes. The permittee shall obtain monitoring information from the generating facility demonstrating that a sludge source has been prepared to meet one of the requirements for PSRP as found in the regulation. No sludge shall be land applied prior to the acquisition of current stabilization data by the permittee.

#### 5. **VECTOR ATTRACTION REDUCTION**

Vector attraction reduction for septage is achieved by “pH adjustment over time” and other sludges by subsurface injection or incorporation of surface applied sludge in accordance with Part III, (B), Section 135 of the Guidance and Regulations Governing the Land Treatment of Wastes. Other alternative methods for achieving vector attraction reduction found in section 135 of Part III, (B), of the Guidance and Regulations Governing the Land Treatment of Wastes, may be employed with prior written Departmental approval.

To ensure the odor of the septage remains minimized, the pH of the septage being applied to the field shall be monitored at minimum daily each day application occurs. Only stabilized septage with a pH of 10.5 S.U. or above may be applied under this permit.

## 6. SOIL MONITORING

<u>Parameter</u>	<u>Measurement</u>	<u>Sampling Frequency</u>	<u>Sample Type</u>
% Organic Matter	percent	Annually	Composite
Total Nitrogen as N (dry weight basis)	mg/kg	Annually	Composite
Phosphorus (dry weight basis)	mg/kg	Annually	Composite
Potassium (dry weight basis)	mg/kg	Annually	Composite
pH	S.U.	Annually	Composite
Aluminum (dry weight basis)	mg/kg	Every 5 Years	Composite
Arsenic (dry weight basis)	mg/kg	Every 5 Years	Composite
Cadmium (dry weight basis)	mg/kg	Every 5 Years	Composite
Chromium (dry weight basis)	mg/kg	Every 5 Years	Composite
Copper (dry weight basis)	mg/kg	Every 5 Years	Composite
Iron (dry weight basis)	mg/kg	Every 5 Years	Composite
Lead (dry weight basis)	mg/kg	Every 5 Years	Composite
Mercury (dry weight basis)	mg/kg	Every 5 Years	Composite
Molybdenum (dry weight basis)	mg/kg	Every 5 Years	Composite
Nickel (dry weight basis)	mg/kg	Every 5 Years	Composite
Selenium (dry weight basis)	mg/kg	Every 5 Years	Composite
Zinc (dry weight basis)	mg/kg	Every 5 Years	Composite

**NOTE:** Soil chemistry testing must be in accordance with the Methods of Soil Analysis published by the American Society of Agronomy, and in accordance with Part III, (B), Section 151 of the Department's Guidance and Regulations Governing the Land Treatment of Wastes. See Part I, J. for reporting requirements.

The Department may modify the sampling frequency based upon review of continuing or additional analyses.

**7. ON-SITE GROUNDWATER MONITORING**

Application of sludge to the designated fields shall not cause downgradient monitoring wells to be in violation of applicable Federal or State drinking water standards on an average annual basis. For compliance with this provision, levels on nitrate migrating on-site from upgradient sources will be considered. If down exceedances in downgradient monitoring wells occur, actions in accordance with Part I, 8. and Part III, 18 may be required.

<u>Parameter</u>	<u>Measurement</u>	<u>Sampling Frequency</u>	<u>Sample Type</u>
Depth to Water	hundredth of feet	Quarterly	In-Situ
Temperature	°C	Quarterly	In-Situ
pH	S.U.	Quarterly	In-Situ
Specific Conductivity	umhos/cm	Quarterly	In-Situ
Dissolved Oxygen	mg/l	Quarterly	In-Situ
Nitrate + Nitrite as Nitrogen	mg/l	Quarterly	Grab
Ammonia as Nitrogen	mg/l	Quarterly	Grab
Total Nitrogen	mg/l	Quarterly	Grab
Total Phosphorus	mg/l	Quarterly	Grab
Chloride	mg/l	Quarterly	Grab
Sodium	mg/l	Quarterly	Grab
Total Dissolved Solids	mg/l	Quarterly	Grab
Fecal Coliform	#/100ml	Quarterly	Grab

All groundwater sampling activities shall be performed in compliance with the Department's Field Manual for Groundwater Sampling (March, 1988) and in accordance with procedures approved by the Department.

Groundwater monitoring results for each monitoring well shall be reported using the State of Delaware Well Identification Tag Number that is required on all wells in accordance with the Delaware Regulations Governing the Construction and Use of Wells, Section 10, A.

After notice and opportunity for a hearing, the Department may modify the list of parameters to be monitored or the frequency monitoring by the permittee based upon observations of groundwater quality trends in the area.

**8. TESTING OF DOWNGRAIDENT PRIVATE DRINKING WATER WELLS**

The permittee shall test downgradient private drinking water wells as directed by the Department.

**9. PLANT TISSUE AND GRAIN ANALYSIS**

None is required at this time.

**G. SCHEDULE OF COMPLIANCE**

None at this time

## H. BONDING

As a requirement for maintaining this permit, the permittee shall file with the Department a bond or other security on a form approved by the Department. The bond shall be conditioned upon the fulfillment of all requirements related to this permit. Liability under the bond shall remain in effect until the expiration date of this permit. A bond in the amount of \$45,000 shall be executed by the applicant and by a corporate surety licensed to do business in this State. The obligation of the applicant and of any corporate surety under the bond shall become due and payable, and all or any part of any cash or securities shall be applied to payment of the costs of properly fulfilling any requirement of the permit if the Department has:

1. Notified the applicant and any corporate surety that the conditions of the permit have not been fulfilled, and specified in the notice the particular deficiencies in the fulfillment of the permit conditions;
2. Given the applicant and any corporate surety a reasonable opportunity to correct the deficiencies and to fulfill all of the conditions of the permit; and,
3. Determined that, at the end of a reasonable length of time, some or all of the deficiencies specified in Part I, H.1, above, remain uncorrected.

## I. MONITORING

1. Representative Sampling:

Samples and measurements taken as required in this permit shall be representative of the volume and nature of the sludge, septage and/or waste to be land applied.

2. Recording of Results:

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date and time of sampling and/or measurement;
- b. The person(s) who performed the sampling and/or measurement;
- c. The dates the analyses were performed and the time the analyses were begun;
- d. The person(s) who performed the analyses; and,
- e. The results of each analysis.

3. Records Retention:

All records and information resulting from the monitoring activities required by this permit including all records of instrumentation and recording from continuous monitoring instrumentation shall be retained for five (5) years. This period of retention shall be extended automatically during the course of any resolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the Department.

**J. REPORTING**

1. The permittee shall submit to the Department and landowners an annual operation report on or before February 1 of each year for the previous calendar year. The annual report shall be in a format acceptable to the Department and shall include the following:
  - a. The daily operational record (as specified in Part II, A.1);
  - b. The weight (wet and dry tons) and volume of wastewater treatment facility sludge, septage, and waste generated in the lime stabilization plant, and wastes utilized at the land application sites;
  - c. The weight of nitrogen, phosphorus, and potassium, from sludge, septage and/or waste, applied to each field. Supplemental fertilizers must be reported separately;
  - d. Any changes in ownership of the land where the operation is conducted or any change in any lease agreement for the use of such land that may affect or alter the operator's rights upon such land;
  - e. A chemical analysis of soil from each field for the constituents identified in Part I, F.6. The results shall be compared to the corresponding soils data submitted as a part of the Project Development Reports. The procedure for soil analysis shall be consistent with Department guidance;
  - f. A chemical analysis of water from each monitoring well for the constituents identified in Part I, F.7 of this permit. Additionally, all observation and/or monitoring wells surrounding application fields must be monitored and the results recorded before land application begins each calendar year and at least monthly during land application activities.
  - g. Site maps of the same scale and contour interval as the maps submitted with the Project Development Reports, showing the boundaries within each field where sludge, septage and/or waste has been applied during the previous year;



- h. For each site: the cropping scheme following during the previous year and anticipated for the coming year; crop yield data and an explanation of which portions of the plants were harvested; results of plant tissue and grain analyses, if required; identification of rates for the coming year based on nitrogen mineralization calculations from previous sludge, septage and/or waste application practices;
  - i. Sludge, septage and/or waste application rate adjustments, if necessary (See Part I, D.); and
  - j. Any other information required by the Department.
2. Sludge, septage and/or waste analytical and stabilization process monitoring data and groundwater monitoring results obtained during the previous monitoring period shall be summarized for that period and postmarked no later than the 28th day of the month following the completed reporting period. **If no sludge, septage and/or waste was applied during this quarter a signed statement saying no application occurred this quarter shall be submitted to the Department.** Signed copies of these, and all other reports required herein, shall be submitted to the Department at the following address:

**DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL, DIVISION OF WATER, SURFACE WATER DISCHARGES SECTION, 89 KINGS HIGHWAY DOVER, DELAWARE 19901 TELEPHONE: (302) 739-9946**

When submitting monitoring results, copies of the original laboratory sheets shall be included. If more than one sample is analyzed during any month, a table showing the range of constituent concentration values shall be prepared and included with the submittal.

3. The permittee shall submit copies of all monitoring results to the landowner of each site in accordance with condition F.2, above.
4. Test Procedures

Test procedures for laboratory analyses shall conform to the applicable test procedures identified in Section 151 of Part III, (B), of the Department's Guidance and Regulations Governing the Land Treatment of Wastes, unless otherwise specified in this permit.

## K. DEFINITIONS

1. "Agricultural Utilization" means the application rate of wastes, septage, sludge or sludge products which shall not exceed the nutrient needs of the crop grown on the particular soil plus the other assimilative pathways in soils (e.g. immobilization with organic material, volatilization, and leachate in compliance with drinking water standards). This term may be used interchangeably with "agronomic rate".
2. "Composite" means a series of grab samples which have been collected in a manner such that the final sample is representative of the volume and characteristics of the material to be analyzed.
3. "Depth of Tillage" means the maximum depth below ground surface at which sludge or waste can be found after injection or incorporation into the soil.
4. "Feed crops" are crops produced primarily for consumption by animals.
5. "Fiber crops" are crops such as flax, cotton, and hemp.
6. "Food crops" are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.
7. "Land application" means the placement of sludge, treated sludge, septage, waste, or any other product containing these materials within 2 feet below the surface of land used to support vegetative growth.
8. "PSRP" means Process to Significantly Reduce Pathogens.
9. "Septage" means the liquid and organic solid contents of a septic tank, cesspool, holding tank or portable toilet waste.
10. "Sewage" means water carried human or animal wastes from septic tanks, water closets, residences, buildings, industrial establishments, or other places, together with such ground water infiltration, subsurface water, admixture of industrial wastes or other wastes as may be present.
11. "Sewage sludge" means sludge which derives in whole or in part from sewage.
12. "Sludge" means the accumulated semi liquid suspension, settled solids, or dried residue of these solids that is deposited from (a) liquid waste in a municipal or industrial wastewater treatment plant, (b) surface or ground water treated in a water treatment plant, whether or not these solids have undergone treatment. Septage is included herein as sludge.
13. "Treatment" means a process which alters modifies or changes the biological, physical, or chemical characteristics of sludge or liquid waste.

14. “Vector Attraction” is the characteristic of sewage sludge, septage or waste that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.
15. “Waste” is any material approved for land application that is regulated under Part V of the Department's Guidance and Regulations Governing the Land Treatment of Wastes.

## Part II

### A. MANAGEMENT REQUIREMENTS

#### 1. Land Application of Sludge, Septage and Waste

The permittee shall prepare and maintain an operational record for each day that stabilized sludge, septage and/or waste is applied and when any other management activities are conducted at the land application sites.

The daily operational record shall include the following:

- a. The date, type, and wet or dry weights of sludge and waste applied and the date and number of gallons of septage applied;
- b. The facility from which the sludge and waste originated and the generator location and origins from which septage was collected;
- c. A record of any major deviations from the operating plan;
- d. General daily weather conditions;
- e. The application rates for sludge, waste and septage;
- f. A map for each site showing the area of daily activity;
- g. A record of all actions taken to correct violations of the Regulations;
- h. Management undertaken, such as planting and harvesting of crops, fertilizers and chemicals added, frequency of irrigation, techniques used, etc.

#### 2. Change in Operation

The application of sludge, septage and/or waste to the sites authorized herein shall be consistent with the terms and conditions of this permit. The application of sludge, septage and/or waste at levels in excess of the amount necessary to provide plant available nitrogen for the crop being grown, in accordance with the limits identified in Part I, D. of this permit, shall constitute a violation of the permit. Any anticipated facility expansion, production increase, or change in site conditions which would affect the land limiting constituent, create a new land limiting constituent, or adversely affect site conditions must be reported to the Department. Upon review of this information, the Department may invoke the provisions of Part II, B.6 of this permit.

#### 3. Noncompliance Notification

The permittee shall report to the Department:

- a. In writing thirty (30) days before any planned physical alteration or addition to the permitted facilities or activities, if that alteration or addition would result in any significant change in information that was submitted during the permit application process;
- b. In writing thirty (30) days before any anticipated change which would result in noncompliance with any permit condition or Part III, (B), of the Guidance and Regulations Governing the Land Treatment of Wastes or CFR Part 503, Standards for the Use and Disposal of Sewage Sludge;
- c. Orally within twenty-four (24) hours from the time the permittee became aware of any noncompliance which may endanger the public health or the environment, at (800) 662-8802. In addition, a call must be placed at (302) 739-9946 during normal business hours;
- d. In writing as soon as possible but within five (5) days of the date of the permittee knows or should know of any noncompliance unless extended by the Department.

This report shall contain:

- 1) A description of the noncompliance and its cause;
  - 2) The period of noncompliance including to the extent possible, times and dates and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
  - 3) Steps taken or planned to reduce or eliminate the reoccurrence of the noncompliance; and,
- e. In writing as soon as possible after the permittee becomes aware of relevant facts not submitted or incorrect information submitted, in a permit application or any report to the Department. Those facts or the correct information shall be included as part of this report.
4. Minimize Impacts

The permittee shall take all necessary actions to eliminate and correct any adverse impact on the public health or the environment resulting from permit noncompliance.

## **B. RESPONSIBILITIES**

### **1. Renewal Responsibilities**

At least 180 days before the expiration date of this permit, the permittee shall submit a new application for a permit or notify the Department of the intent to cease operation by the expiration date. In the event that a timely and sufficient



reapplication has been submitted and the Department is unable, through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

2. Entry and Access

The permittee shall allow the Department, consistent with 7 Del. C., Chapter 60 to:

- a. Enter the permittee facility;
- b. Inspect any records that must be kept under this permit;
- c. Inspect any facility, equipment, practice, or operation permitted or required by this permit;
- d. Sample or monitor for the purpose of assuring permit compliance, any substance or any parameter at the facility or land application site;

3. Provide Information

The permittee shall furnish to the Department within a reasonable time, any information requested, including copies of records, which may be used by the Department to determine whether cause exists for modifying, revoking, reissuing, or terminating the permit, or to determine compliance with the permit or Part III, (B), of the Guidance and Regulations Governing the Land Treatment of Wastes.

4. Transfer of Ownership or Control

This permit shall be transferable to a new owner or operator provided that the permittee notifies the Department by requesting a minor modification of the permit before the date of transfer and provided that the transferee shows evidence of a legal right to use the site and is otherwise in compliance with all applicable provisions of Part III, (B), of the Department's Guidance and Regulations Governing the Land Treatment of Wastes.

5. Operation of Facility

The permittee shall at all times properly maintain and operate all structures, systems, and equipment for treatment, control and monitoring, which are installed or used by the permittee to achieve compliance with this permit or Part III, (B), of the Guidance and Regulations Governing the Land Treatment of Wastes.

6. Permit Revocation and Modification

- a. After notice and opportunity for a hearing, this permit may be modified or

revoked in whole or in part during its term for causing including, but not limited to, the following:

- 1) Violation of any terms or conditions of this permit;
  - 2) Obtaining this permit by misrepresentation or failure to disclose fully all of the relevant facts;
  - 3) Any change in operating conditions that requires either a temporary or permanent permit modification; or
  - 4) If the Department finds that the public health, safety or welfare requires emergency action, the Department shall incorporate findings in support of such action in an written notice of emergency revocation issued to the permittee. Emergency revocation shall be effective upon receipt by the permittee. Thereafter, if requested by the permittee in writing, the Department shall provide the permittee a revocation hearing and prior notice thereof. Such hearings shall be conducted in accordance with 7 Del. C., Chapter 60.
- b. The Department may revoke this permit if the permittee violates any permit condition, any provisions of the Guidance and Regulations Governing the Land Treatment of Wastes, or fails to pay applicable Department fees.

## 7. Permit Closure Requirements

- a. All land approved for the Agricultural Utilization of sludge, septage and waste is required to have a closure report when the land is no longer being utilized as described in permit application when the permit expires. The report must be submitted to the Department within six (6) months of determination that the field(s) will no longer be utilized for sludge, septage or waste application. The closure report shall include the following:
- 1) A letter from permittee stating the application site(s) (with tax parcel number(s)) that will no longer receive sludge, septage and waste approved by this Permit.
  - 2) A copy of the last sludge, septage and/or waste monitoring results as required in Part I, F.1, F.2, and F.3 of this permit.
  - 3) A copy of the last soil monitoring results as required in Part 1, F.6 of this permit. A soil test is required after the last land application of sludge, septage and/or waste.
  - 4) A copy of the last groundwater monitoring well results as required in Part I, F.7 of this permit. Groundwater samples shall be collected at minimum ninety (90) days after the last land application of sludge,

septage, or waste.

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under 7 Del. C., Chapter 60.

9. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

10. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, or any infringement of Federal, State or local laws or regulations.

11. Severability

If any provision of this permit is held invalid, the remainder of this permit shall not be affected. If the application of any provision of this permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

12. Compliance Required

The permittee shall comply with all conditions of the permit.

13. Reopener

In the event that the Part III, B, of the Guidance and Regulations Governing the Land Treatment of Wastes or applicable Federal Regulations are revised, this permit may be reopened and modified accordingly after notice and opportunity for a public hearing.

## Part III

### A. SPECIAL CONDITIONS

The permittee must ensure that the following conditions are met:

1. Only sludge and septage meeting the requirements for stabilization and the processed to significantly reduce pathogens by methods approved by the Department and as specified in this permit may be land applied.
2. Sludge, septage and waste shall be transported to the land treatment site in accordance with Delaware Waste Transporters Permit No. WH-13.
3. The septage stabilization facility and the land application areas shall be managed in such a manner as to prevent objectionable odors beyond the site boundaries. If the Department determines obnoxious odors produced by activities at Clean Delaware are a public nuisance, the permittee shall with the approval of the Department, take the necessary steps to eliminate such odors. Failure to control odors may result in the Departments invoking Part II, B.6 of this permit.
4. A minimum one (1) foot freeboard must be maintained in the septage storage tank at all times.
5. Grease trap waste removed from restaurants grease traps may be directly land applied at the site without prior lime stabilization provided that only kitchen waste is processed through the grease trap. Part V of the Guidance and Regulations Governing The Land Treatment of Wastes apply to the collection, storage, treatment, application and monitoring of grease trap waste handling.
6. The permittee shall pay the Department the lawful annual permit fee for the agricultural utilization of sludge as established by Legislature.
7. The septage lime stabilization treatment system described in this permit is designated as a Class I facility and requires a Class I licensed wastewater operator.
8. Septage solids shall not be land applied onto areas where septage supernatant is spray irrigated.
9. Septage supernatant may not be spray irrigated onto barren fields.
10. Septage supernatant must be applied in a manner such that the application is even and uniform over the area being irrigated.
11. The septage application field(s) shall be managed in such a manner as to prevent septage pooling and/or discharge to any surface waters. Should pooled areas become evident, no spraying shall be conducted in those areas until saturated conditions no longer exist.

12. Pre Start Up (Must be accomplished annually for each application site)
  - a. Prior to the application of sludge, septage and/or waste, buffer zones and the areas on which the material is to be applied must be clearly marked with stakes or other suitable markers acceptable to the Department.
  - b. The permittee must notify the Department at (302) 739-9946 at least two (2) working days prior to the application of sludge, septage and/or waste to any field for the first time each calendar year.
  - c. Before the permittee can begin to apply sludge, septage or waste to the designated site, a pre start up inspection may be conducted by the Department to verify that proper buffer zones and non application areas are suitably marked. Based on the results of the pre start up inspection, the Department will either:
    - 1) grant approval for sludge, septage and/or waste application operations to begin or;
    - 2) require the permittee to perform additional site preparation (such work must be performed and approved prior to sludge, septage and/or waste application).
13. Application Measures
  - a. Utilization of industrial septage, with the exception of septage generated by restaurants, must receive separate authorization from the Department prior to land application.
  - b. If at any time during the sludge, septage, and/or waste application period the depth to groundwater is less than 20 inches from the surface, all sludge, septage and/or waste application activities shall immediately cease and the Department shall be notified. Departmental approval shall then be required before sludge and/or waste application operations can continue.
14. Post Application Measures
  - a. The facility must provide the Department with a crop plan for the year in which sludge, septage and/or waste is to be applied to lands specified in this permit. Any changes to the crop rotation plan must be approved by the Department prior to implementation.
  - b. The Annual Report shall be submitted to the Department as required in Part I, F.1 of this permit. Should the permittee fail to supply the required documents on or before the deadline specified, the Department may revoke this permit.



15. If, for any reason, any of the contracts or agreements specified in the Project Development Report any one of the approved sites is cancelled or amended, approval granted for use of that site shall be void.

16. Regulatory Modification

In the event that Part III, (B) or Part V, of the Guidance and Regulations Governing the Land Treatment of Wastes or Title 40 of the Code of Federal Regulations Part 503, Standards for the Use or Disposal of Sewage Sludge are revised, this permit may be reopened and modified accordingly after notice and opportunity for a public hearing.

17. The permittee is responsible for compliance with both the Department's Guidance and Regulations Governing the Land Treatment of Wastes and Title 40 of the Code of Federal Regulations, Part 503, Standards for the Use and Disposal of Sludge. Compliance with this permit does not constitute compliance with the Federal regulation.

18. If down-gradient potable water supply wells (public or private) are impacted above applicable Federal or State drinking water standards from permitted land application activities, the permittee shall be required to provide a free Department approved alternative water supply to the affected parties. For compliance with this provision, levels of nitrate migrating on-site from upgradient sources will be considered. Periodic testing of downgradient private drinking water wells previously impacted or likely impacted by land application activities shall be completed by the permittee as directed by the Department.

19. Supersedes Previous Permit

This permit supersedes State Permit No. AGU 1702-S-03 effective January 1, 2017.