



STATE OF DELAWARE
**DEPARTMENT OF NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL**
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OFFICE OF THE
SECRETARY

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Secretary's Order No.: 2023-W-0001

**RE: Application of Clean Delaware, LLC, for renewal of their
existing Agricultural Utilization ("AGU") Permit
(State Permit Number AGU 220X-S-03)**

Date of Issuance: January 3, 2023

Effective Date: January 3, 2023

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC"), pursuant to 7 *Del.C.* §§6003, 6004, 6006, Delaware's *Guidance and Regulations Governing the Land Treatment of Wastes, Part III (B), Regulations Governing the Land Treatment of Sludges and Sludge Products, and Part V, Land Treatment of Waste Products* (7 DE Admin. Code 7103), and all other relevant statutory authority, the Department of Natural Resources and Environmental Control ("Department" or "DNREC") issues this Order, approving the Agricultural Utilization ("AGU") Permit Renewal Application of Clean Delaware, LLC ("Clean DE" or "Applicant"), for the land treatment of biosolids, septage, and approved wastes, limited to the Applicant's sites located in Milton, Delaware, and Harbeson, Delaware, as set forth in detail below ("Application").

Background, Procedural History and Findings of Fact

The Applicant's existing AGU permit authorizes the land application of biosolids, generated at small-volume wastewater treatment facilities that have undergone a "Process to Significantly Reduce Pathogens" ("PSRP") and other approved wastes at agronomic rates, onto three non-contiguous sites comprising a total of approximately 228 acres of land suitable for crop production. The three land application sites include the Milton site (located approximately one mile northwest of Milton, Delaware), the Harbeson site (located in the center of Harbeson, Delaware), and the Ellendale/New Market site (located approximately two miles east of Ellendale, Delaware). The existing permit also authorizes the application of lime stabilized septage that has undergone a PSRP at agronomic rates onto designated portions of the Milton site. Clean DE has requested that the Ellendale/New Market site be removed from the AGU permit upon renewal. Thus, with the issuance of the Applicant's AGU permit renewal, land application under this permit will be limited to the Milton and Harbeson sites only.

It should be noted that Clean DE had submitted a previous application for modifications to their existing AGU permit (Hearing Docket No. 2019-P-W-0023), which was the subject of a public hearing held by the Department in November 2019. That application was subsequently withdrawn by the Applicant. As a result, no final permitting decision was rendered by the Department on that prior application. Clean DE is now pursuing the 2019 modification requests as a component of this current Application (Hearing Docket No. 2022-P-W-0005). This Order is the final decision on the 2022 Application concerning Clean DE's AGU permit renewal currently pending before the Department at this time.

To serve as an overview of this Applicant's business, Clean DE applies certain land treatable wastes, as approved by DNREC, to permitted land at agronomic rates as fertilizer. The wastes that are land applied are put down at a nitrogen loading rate, which provides the nutrients crops need to grow for optimum yield. Products applied include Class B biosolids, Class B septage, grease trap waste, brewery wastewater, and vegetable processing residuals. The Applicant's operation began in the late 1980s as Clean Delaware, Incorporated, and as of 2004, became known as Clean Delaware, LLC.

Historically, Clean DE has had three land application sites in Sussex County, Delaware: the Milton site, the Harbeson site, and the Ellendale site. The Milton site is comprised of approximately 170 acres, split amongst seven fields. The Milton site is also the location of the Applicant's processing center for septage and equipment. The Harbeson site is located immediately southeast of the intersection of Route 5 and Route 9 in Harbeson and is comprised of approximately 24 acres. The Ellendale site (also known as the New Market site) is located just east of Ellendale and is comprised of approximately 34 acres. However, as noted above, the Applicant has requested that the Ellendale site be removed from the AGU permit upon renewal, as moving forward, that site will no longer be utilized for the land application of waste regulated under Clean DE's AGU permit.

To provide clarity for the hearing record ("Record") generated in this matter, several terms describing Clean DE's operation in Sussex County, Delaware should be defined. First, the term "septage" is sewage pumped from a septic tank that has been treated by a Class B process to significantly reduce pathogens, a process known as "PSRP," previously referenced above. Septage is not raw sewage from a septic system. Rather, septage has been treated prior to it being land applied at Clean DE. Neither does the term "biosolids" refer to raw sewage. Biosolids are one of the final products from the treatment of municipal wastewater at a wastewater treatment plant that has undergone an approved pathogen reduction process of the U.S. Environmental Protection Agency ("EPA"), such as Class B PSRP.

After treatment breaks down and digests the organic compounds and greatly reduces disease-causing organisms in wastewater, only then are the remaining fine particles ultimately considered biosolids. Class B solids contain nitrogen, phosphorous, and other nutrients that are essential for plant growth and are utilized as a fertilizer. Over time, application of such materials can increase the organic content of the soil, resulting in improved water-holding capacity and soil quality.

Biosolids are regulated in different ways by different regulatory agencies. At the federal level, the EPA regulates biosolids under 40 CFR 503, *Standards for the Use or Disposal of Sewage Sludge*. In Delaware, DNREC regulates biosolids under 7 DE Admin. Code 7103, *Guidance and Regulations Governing the Land Treatment of Wastes, Part III, Regulations Governing the Land Treatment of Sludges and Sludge Products, and Part V, "Land Treatment of Waste Products."*

With regard to Class B Land Application Site Requirements and Restrictions, the sampling of biosolids that will be land applied (and the soil they are applied onto) have many parameters that are analyzed, including, but not limited to, nutrients, metals, percent solids, pH levels, etc. Delaware requires a detailed soils analysis and a report prepared by a Certified Professional Soil Scientist prior to any land application site approval. This is done to determine site suitability for land application, and to delineate areas not suitable for land application. A 20-inch separation from the depth of tillage to the seasonal high groundwater table is also required. As biosolids are surface applied, the seasonal high groundwater table cannot be within 20 inches of the soil surface. If biosolids are injected into the top foot of the soil, then groundwater could not be within the top 32 inches of the soil profile.

Additionally, Delaware requires groundwater monitoring. This has been implemented at Clean DE since 2013. Delaware permittees are also required to track all biosolids and waste application and apply materials at an agronomic rate in accordance with a plan developed by a Delaware Certified Nutrient Consultant, helping to ensure that nutrients that are applied are done so at a rate that does not exceed the crop requirement, based on historical yields and book values. Also, buffer zones from wells, streams, ditches, property lines, houses, etc., must be maintained.

Delaware also imposes limitations so that land application does not occur during adverse weather conditions, such as rain and snow. There are also crop harvest restrictions that dictate the length of time before crops can be utilized, depending upon the type of crop and use of crop, and public access restrictions for sites that receive biosolids, and cover crops are required in the winter after application occurs during any given year.

Additionally, it should be noted that, in Delaware, DNREC routinely inspects approved biosolids land application sites, both during and after application activities, to ensure compliance with permit conditions. The Department requires that all biosolids (materials containing any treated sanitary human waste), including those land applied at Clean DE, must undergo treatment using one of the EPA approved PSRPs to be characterized as “Class B” biosolids. For septage, pH is raised to 12 standard units for at least 2 hours.

There is a process by which the EPA establishes federal standards for the safe and beneficial utilization of biosolids. Delaware utilizes standards at least as stringent as those established by the EPA. The EPA has identified 14 different ways that soil amended with biosolids may potentially impact human health and the environment. Based on the information gathered during the EPA’s risk assessment process, safeguards and best management practices, along with various federal regulatory requirements, have been developed. The EPA is required every two years to refine risk assessments and review contaminants that are present in biosolids. The EPA is also required to establish numeric limits and management practices that protect public health and the environment from the reasonably anticipated adverse effects of chemical and microbial pollutants during the use or disposal of biosolids.

There has been public concern in general surrounding the potential for emerging contaminants in biosolids. “Emerging contaminants” are pollutants that have been detected in wastewater where additional research is needed to determine the risk, or to refine the known risk to human health and the environment. The EPA’s risk assessment determines whether new or revised numeric standards are warranted under EPA’s biosolids regulations. According to EPA, addressing the uncertainty around potential risks for pollutants identified in biosolids - including emerging contaminants - is the top priority for the EPA’s biosolids program. Should EPA implement such standards, DNREC will implement standards that are at least as stringent as those developed by EPA.

With regard to the operations process utilized at Clean DE’s septage acceptance facility (and how pathogen reduction is completed), trucks loaded with septage arrive at the facility and unload their septage into a device that removes any trash that may be present therein. The removed trash is subsequently taken to a landfill. Next, the septage travels to a settling chamber, where grit and other heavier material settle out of the septage. The septage then continues into underground tanks, where lime is added to the materials and the pH level is raised to at least 12 standard units for at least two hours to achieve Class B pathogen reduction. From there, the septage is pumped into a 200,000 gallon above-ground storage tank. Ultimately, when conditions are appropriate, the aforementioned septage is land applied using a retractable hose reel. The hose reel is extended to one end of the farm field, and then is slowly reeled back in as the septage is applied at the appropriate hydraulic loading rate.

With regard to nutrient management, land applied materials contain nitrogen and phosphorous, and are utilized as fertilizer. Under the AGU renewal permit that will be issued to Clean DE, Delaware will require that the timing, quantity, and quality of sludge to be land applied is determined by a Delaware Certified Nutrient Management consultant and specified in the site-specific Nutrient Management Plan in accordance with the limitations detailed in the draft permit renewal. Nitrogen may be applied up to an agronomic rate to support optimum crop growth based on realistic yields for crop(s) that will be grown on the application field(s). Crops roots then take up the nutrients and utilize them for growth.

In Delaware, buffers are required to be maintained from various sensitive areas. Clean DE’s land application permit requires such buffers be maintained from dwellings, wells, roads, streams, ponds, etc., as follows:

	<u>Surface Application</u>	<u>Surface Injection</u>
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

On June 2, 2021, Clean DE submitted a letter of intent to the Department’s Division of Water, Surface Water Discharges Section (“SWDS”), to renew its existing AGU permit. The renewal package was received November 23, 2021, and included revisions dated through February 21, 2022. On March 20, 2022, the Department published legal notice of receipt of the above-described renewal request of Clean DE’s existing AGU permit in *The News Journal*, the *Delaware State News*, and that the public hearing regarding this matter would be held on April 27, 2022. On March 31, 2022, the Department posted on the State of Delaware Public Meeting webpage notice of the aforementioned receipt of Clean DE’s AGU permit renewal request, and of the public hearing to be held of April 27, 2022.

As noted above, the legal notice specifically indicated that Clean DE had formally withdrawn its previous 2019 permit modification request, but was pursuing those same modifications as a component of the permit renewal application. Accordingly, the public hearing concerning this matter was held by the Department, as described above.

Department staff and representatives of the Applicant attended the virtual public hearing held on April 27, 2022. No members of the public attended the virtual public hearing. The Record remained open for receipt of comment through May 12, 2022, however, no comment was received by the Department regarding Clean DE’s 2022 Application.

It should be noted that, while no comments were received by the Department from the public at the time of the public hearing, nor during either the pre- or post-hearing phases concerning the 2022 Application, DNREC has incorporated numerous modifications to Clean DE’s existing AGU permit that will take effect upon renewal, in light of the comments *previously* received by the Department during the Applicant’s aforementioned 2019 permit process. Proper notice of the hearing was provided as required by law.

Subsequent to the close of the public comment period as noted above, Hearing Officer Lisa A. Vest prepared her Hearing Officer's Report ("Report"), dated December 14, 2022. Ms. Vest's Report set forth the procedural history, summarized and established the Record of information relied on in the Report, and provided findings of fact, reasons, and conclusions that recommend the Department approve the Application for Clean DE's renewal of their AGU Permit, subject to the conditions set forth in the Draft Permit prepared by the SWDS. The Report, with the Draft Permit prepared by the SWDS attached thereto as Appendix "A," is incorporated herein by reference.

**Changes incorporated into the Applicant's AGU Permit
to become effective upon renewal:**

As noted above, numerous modifications to Clean DE's existing AGU permit have been incorporated into the SWDS Draft Permit, in consideration of the concerns raised in the public comments *previously* received by the Department during the Applicant's 2019 permitting process. The changes incorporated by the Department into Clean DE's AGU permit renewal are as follows:

- **Buffer Distances for Septage Added in Draft Amended Permit:**

The following minimum application setback distances shall be maintained for septage application:

- 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 (distance can be reduced from 500 feet to no less than 200 feet with permission from the property tenant)
- Streams, tidal waters, or other water bodies – 100 feet

- **Wind Limitations for Septage (New):**
 - An anemometer and windsock are now installed at the Milton Farm.
 - Septage shall not be applied when sustained winds exceed 10 mph or wind gusts exceed 15 mph.
 - The permittee shall ensure that any aerosols created by land application do not carry beyond the property boundaries.

- **Improved Land Application Practices:**
 - To minimize the potential leaching of nitrogen to groundwater, application of wastes may be made onto a vegetative cover in addition to the original permit condition that required wastes to be incorporated into the soil within six (6) hours of application.
 - This practice allows for a continuous nutrient uptake while minimizing nitrogen loss to groundwater.
 - Will also help maintain soil structure, minimize compaction, and reduce rutting in the fields.
 - The length of time that a field is permitted to not have a crop planted after biosolids application occurs is one (1) month or less.
 - Cover crops are required to be utilized during winter months for all fields after application occurs.
 - For Milton Farm fields 6 and 7, application will be limited to April 1 through October 15.

- **More Stringent Metals Limits for all Products Applied by Clean DE (new):**
 - Historically, all products applied by Clean DE have historically been consistently under the “pollutant concentration limits” listed below:

Arsenic: 41 mg/kg	Cadmium: 39 mg/kg	Chromium: 1200mg/kg
Copper: 1500 mg/kg	Lead: 300 mg/kg	Mercury: 17 mg/kg
Molybdenum: 18 mg/kg	Nickel: 420 mg/kg	PCBs: 3 mg/kg
Selenium: 36 mg/kg	Zinc: 2800 mg/kg	-----

- Based on EPA’s risk assessment, biosolids applied with metals under the pollutant concentration limits pose no adverse effect, thus tracking cumulative metal loading rates is not necessary.

- **Proposed Changes to Metal Sampling Frequency for Wastes:**
 - Current sampling requirement is every three (3) years for metals. Proposed frequency: once every five (5) years (once per permit cycle).
 - Biosolids sampling frequency requirement will remain unchanged (annually).

- **Proposed Changes for Sampling Frequency of Metals in Soils:**
 - Relax frequency from every three (3) years to every five (5) years (once per permit cycle).
 - Historically, metals have been well below risk-based standards in the materials land applied, thus, metals accumulation in the soil will not occur.
 - Soil data spans over 30 years and demonstrates metals in soil continue to be well below standards and are not accumulating in the soil.

- **Proposed Removal of Monthly Groundwater Depth Gauging Requirement:**
 - Clean DE’s land application sites greatly exceed the separations required from the depth of tillage to the seasonal high groundwater level.
 - The requirement is 20 inches. The Applicant’s minimum separation has been 7 feet, historically, and thus there is no need to continue measuring the groundwater levels in the active land application field.

- Groundwater levels will still be monitored as part of the routine quarterly monitoring that occurs at all of Clean DE's application sites.
- **Proposed Requirement for Downgradient Drinking Water Monitoring (new):**
 - Clean DE is required to test downgradient private drinking water wells as directed by the Department.

As noted above, historically, groundwater monitoring was not required at biosolids application sites. However, in 2013, Clean DE installed a network of groundwater monitoring wells and impacts from nitrates were identified in the groundwater at the application sites. Upon identifying the groundwater impact in 2013, DNREC, in cooperation with Clean DE, sampled all surrounding private drinking water wells.

While there were a few situations where property owners and/or tenants rejected the Department's assistance, the majority of all downgradient monitoring wells and wells immediately adjacent to the application sites were sampled. Clean DE provided treatment for nitrates for all impacted drinking water wells identified, and a reduction in application activities and improved best management practices were implemented. As a result, nitrate levels in shallow groundwater have reduced over time.

In the State of Delaware, impacts from nitrates are common, primarily from agricultural activities. Both the EPA and the Centers for Disease Control and Prevention, under the United States Department of Health and Human Services, recommend annual sampling of all private wells in the United States to ensure acceptable drinking water quality. Test kits are available through the Delaware Division of Public Health, which has offices throughout Delaware, specifically, in Georgetown, Dover, Smyrna and Newark. In addition, within Clean DE's AGU renewal permit, Delaware will now require Clean DE to perform periodic testing of impacted private downgradient drinking water wells, as directed by the Department.

Reasons and Conclusions

Currently pending before the Department is the above-described Application submitted by Clean DE, requesting the renewal of their existing AGU permit for the land treatment of biosolids, septage, and approved wastes under the Department's *Guidance and Regulations Governing the Land Treatment of Wastes, Part III (B), Regulations Governing the Land Treatment of Sludges and Sludge Products, and Part V, Land Treatment of Waste Products* (7 DE Admin. Code 7103). I find that the Applicant is required to obtain this renewal of their existing AGU permit, for the reasons noted above. I further find that the above-described Application is subject to various state and federal regulatory requirements, as noted above, and as provided for under 7 *Del.C.* Ch. 60.

In reviewing the applicable statutes and regulations, as well as weighing public benefits of this project against potential detriments, the Department's experts in the SWDS have concluded that Clean DE's pending 2022 Application complies with all applicable federal and state laws and regulations. The renewal of Clean DE's existing AGU permit to be issued by the Department will be reflective of the 2022 Application submitted in this matter and would be appropriately conditioned with the numerous modifications as set forth herein to ensure continued protection of public health and the environment.

As stated previously, the Draft Permit (State Permit Number AGU 220X-S-03) prepared by the Department's SWDS regarding the renewal of Clean DE's AGU permit, as identified at the time of the public hearing as "Department's Exh. 6" and posted as such on the hearing webpage dedicated to this matter, was expressly incorporated into Ms. Vest's Report, and attached thereto as Appendix "A." It should be noted that no changes were made by the Department to this Draft Permit subsequent to the public hearing held on April 27, 2022.

The Record developed in this matter indicates that the Department's experts in the SWDS believe the aforementioned Draft Permit addresses all technical and regulatory concerns reflected in the Record, while fulfilling the Department's mission to protect the public health and the environment. Further, the Department's experts in the SWDS have recommended approval of Clean DE's existing AGU permit, with the above-described modifications incorporated therein.

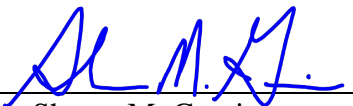
I find and conclude that the Applicant has adequately demonstrated compliance with all requirements of the applicable statutes and regulations, as set forth above, and is continuing to work with the Department to assure that all commitments and compliance requirements are met, as noted herein. I further find that the Record supports approval of the renewal of Clean DE's existing AGU Permit, as submitted by the Applicant to the SWDS in this matter, with the above-described modifications incorporated therein. Moreover, I find and conclude that the Record supports the recommendations of the Department's experts in the SWDS, for the reasons noted above.

Accordingly, this Order approves the Application for AGU Permit Renewal for Clean Delaware, LLC, and the issuance of State Permit Number AGU 220X-S-03 for the land treatment of biosolids, septage, and approved wasted, limited to the Applicant's Milton and Harbeson sites, as set forth above, consistent with the Record developed in this matter and with appropriate conditions.

Further, the Department concludes and specifically directs the following:

1. The Department has jurisdiction, as provided for under *7 Del.C. Ch. 60, 7 DE Admin. Code 7103, Guidance and Regulations Governing the Land Treatment of Wastes, Part III (B), Regulations Governing the Land Treatment of Sludges and Sludge Products, and Part V, Land Treatment of Waste Products*, and all other relevant statutory authority, to make a final determination on the aforementioned pending permit application submitted by Clean DE after holding a public hearing, considering all information contained in the Record generated in this matter;

2. The Department provided proper public notice of the Application submitted to the Department by Clean DE and of the public hearing held on April 27, 2022, and held said hearing to consider any public comments that may be offered on the applications, in a manner required by the law and regulations;
3. The Department has carefully considered the factors required to be weighed in issuing Clean Delaware, LLC's AGU Permit Renewal, as required by the Application submitted to the Department, and finds that the Record supports approval of the same;
4. The Department shall issue to Clean Delaware, LLC, a renewal of their existing AGU permit for the land treatment of biosolids, septage, and approved wastes, limited to the Milton and Harbeson sites, as set forth above, consistent with the aforementioned Draft Permit (State Permit Number AGU 220X-S-03) as prepared by the Department's SWDS, and the Record developed in this matter, to ensure that Delaware's environment and public health will be protected from harm;
5. The Department adopts the Report and its attachment as further support for this decision;
6. The Department has an adequate Record for its decision, and no further public hearing is appropriate or necessary; and
7. The Department shall serve and publish its Order on its internet site.


Shawn M. Garvin
Secretary