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Via Certified Mail and Electronic Mail

February 14, 2022

Michael S. Regan, Administrator
United States Environmental Protection Agency
Mail Code: 1101A
1200 Pennsylvania Avenue, NW
Washington, DC 20460
Email: regan.michael@epa.gov

Debra Shore, Regional Administrator
United States Environmental Protection Agency Region V
77 West Jackson Boulevard
Chicago, Illinois 60604
Email: shore.debra@epa.gov

Laurie A. Stevenson, Director
Ohio Environmental Protection Agency
50 West Town Street
Columbus, Ohio 43215
Email: laurie.stevenson@epa.ohio.gov

Dovetail Energy, LLC
c/o CH&K Agent Service, Inc.
1 South Main Street – Suite 1300
Dayton, Ohio 45402

Renergy, Inc.
c/o Alexander Ringler, Statutory Agent
461 State Route 61
Marengo, Ohio 43334

Re: 60 Day Notice of Intent to File a Citizen Suit Under 42 U.S. Code 7604

Dear Administrator Regan, Regional Administrator Shore, Director Stevenson, *Et al.*:

This letter is being submitted on behalf of Bath Township, Greene County, Ohio and the City of Fairborn, Greene County, Ohio to notify you, pursuant to Section 304 of the Clean Air Act (CAA), 40 U.S. Code 7604, of their intent to sue the United States Environmental Protection Agency (USEPA), the Ohio Environmental Protection Agency (Ohio EPA), and both Dovetail Energy, LLC and Renergy, Inc. (collectively referred to hereinafter as “Renergy”) for violations of the CAA. Specifically, USEPA and Ohio EPA have failed to perform non-discretionary duties in connection with permitting and regulating ammonia emissions to the ambient air from a 5.5 million gallon digestate storage lagoon operated by Renergy at 1156 Herr Road, Fairborn, Ohio. Renergy, in turn, installed and has operated this lagoon without a Permit to Install and Operate (PTIO) as required by Ohio’s State Implementation Plan (SIP).



I. FACTUAL BACKGROUND

Since 2014, Renergy has owned and operated an anaerobic biodigester located at 1156 Herr Road within the City of Fairborn in Bath Township, Greene County, Ohio. The electricity generated by Renergy's biodigester allegedly powers operations on adjacent property(ies). Electricity is also allegedly provided to the wholesale electric grid. As such, Renergy identifies its operations as constituting a "public utility" as that term is defined in applicable provisions of the laws and regulations of the State of Ohio.

Renergy's biodigester processes various solid and liquid waste materials including food waste, biosolids, and hog manure to produce methane that is combusted to create electrical energy. When solid and liquid waste materials are fed into the digester, digestate (the digested solid and liquid waste materials in the digester) is discharged from the digester into a 5.5 million gallon lagoon that is uncovered and open to the ambient air. Renergy sometimes removes digestate from the lagoon for Ohio EPA-approved agricultural land application as fertilizer.

Beginning in 2014 when Renergy commenced operation of its Fairborn facility, the citizens of Bath Township and the City of Fairborn began to routinely experience strong and offensive odors believed to be emanating from Renergy's facility. From April of 2017 through June of 2021 alone, Ohio EPA recorded more than 340 citizen complaints with respect to Renergy's Fairborn facility. The vast majority of these complaints pertained to objectionable odors that the complainants attributed to Renergy (with the balance of the complaints pertaining to non-odor issues related to Renergy's operations).

II. CURRENT AIR PERMITTING OF RENERGY'S FAIRBORN FACILITY

On February 16, 2018 – four years after commencing operation – Renergy submitted an air pollution PTIO application (attached as Appendix A) to Ohio EPA for its Fairborn facility.¹ Along with its PTIO application, Renergy submitted an Ohio EPA Division of Air Pollution Control Emissions Activity Category (EAC) Form (attached as Appendix B). Renergy's PTIO application identified only three (3) emissions units: 1) a digester tank with flare; 2) a "CAT 3516" engine; and, 3) a "backup generator" engine. The digestate lagoon was not identified as an emissions unit. Renergy did not submit any potential to emit (PTE) calculations for the lagoon to justify an exemption from permitting requirements pursuant to Ohio Admin. Code Rule 3745-15-05, nor did Ohio EPA or the Regional Air Pollution Control Agency (RAPCA) request such calculations. Less than two months later, on April 9, 2018, Ohio EPA issued Renergy PTIO Number P0124072 (attached as Appendix C). Renergy's original PTIO was later modified and replaced by PTIO Number P0127783 (attached as Appendix D) on April 15, 2020. Neither PTIO identified the digestate lagoon as an air contaminant emissions unit, and neither PTIO contained any substantive terms and/or conditions applicable to the digestate lagoon.

¹ Renergy also operates two (2) facilities consisting of a biodigester and/or lagoons (or similar surface impoundments) in Delaware County, Ohio at 2135 Township Road 224, Ashley, Ohio and 2279 County Road 156, Cardington, Ohio. Renergy's two (2) lagoons/impoundments in Ashley total more than 31 million gallons, and seven (7) lagoons/impoundments in Cardington similarly total more than 31 million gallons.

III. THE "POTENTIAL TO EMIT" AMMONIA FROM RENERGY'S LAGOON

Technical papers regarding digestate storage lagoons indicate that such lagoons emit significant amounts of ammonia. The amount of ammonia emitted is a function of the total nitrogen in either the digester feedstock or in the digestate discharged to the lagoon. Emission factors have been published to enable both regulatory agencies and regulated entities to estimate with reasonable accuracy the ammonia PTE from the open storage of digestate generated by anaerobic digestion of waste at biodigester facilities. Sources of such emission factors include the following technical documents: 1) Bell, M.W., *et al. Ammonia emissions from an anaerobic digestion plant estimated using atmospheric measurements and dispersion modelling*. Waste Management, Elsevier (2016); and, 2) the European Environment Agency's *EMEP/EEA Air Pollutant Emission Inventory Guidebook 2019* and its discussion of emissions from the biological treatment of waste from anaerobic digestion at biogas facilities. (These papers are attached as Appendix E and Appendix F, respectively.)

Renergy represented in the EAC Form submitted along with the 2018 PTIO application for its digester that the maximum hourly feed rate for the digester is 4,950 gallons/hour consisting of: 2,925 gallons/hour of "food and wastewater"; 1,575 gallons/hour of "biosolids and wastewater"; and, 450 gallons/hour of hog manure. For purposes of calculating an ammonia PTE for the facility, these hourly throughputs represent the facility's maximum production rate. Based upon this maximum production rate coupled with total Kjeldahl nitrogen (TKN) and ammonia (NH₃) data from digestate discharge monitoring reports (DMRs) Renergy submitted to Ohio EPA pursuant to the Fairborn facility's Clean Water Act National Pollutant Discharge Elimination System Permit Number IIN00305*AD, the digestate lagoon's ammonia PTE can be calculated several ways utilizing the emission factors published in the above-referenced papers.

A. Ammonia Emission Estimates Based Upon the Model Referenced in Table 3 of the Paper by Bell, M.W., *et al*:

Table 3 of the paper is entitled "*Intercomparison of the chemical composition and estimated emission rates of the Deerdykes digestate with different digestates reported in the literature. Deerdykes emission rates are calculated using the Borka et al. (2000) model.*" The NH₃ emission rates for this Table were calculated using the Borka *et al.* (2000) model. That model is defined in the following paragraph from the technical paper entitled "*Development of an Empirical Model for Ammonia Emissions from Slurry in Cattle Houses*":

"From these simple regressions the following multi-factorial emission model was developed:

$$E = 17.254 * 1.060^{tS} * LD^{2.74} * TAN$$

Legend:

E emission [mg NH₃ m⁻² hr⁻¹]

LD air exchange rate [m³ hr⁻¹ m⁻²]

tS substrate temperature [°C]

TAN NH₄⁺ / NH₃-N-concentration of substrate [g N kg⁻¹]

The control experiments and the calculated statistical error of the model showed that the uncertainty of the model does not exceed ±30 %."

In the DMR data submitted by Renergy for its Fairborn facility during the period from January 13, 2016 through November 8, 2021, the NH₃ values for the digestate varied from a low of 5,890 mg/kg (on September 22, 2016) to a high of 89,700 mg/kg or 89.7 g/kg (on February 10, 2016). The NH₃ values are believed to be the total ammoniacal concentrations in the digestate.²

In calculating the NH₃ emission rate from the lagoon, the substrate temperature was assumed to be 15.5 degrees C (60 degrees F). Also, the two highest air exchange rates used in the calculations for Table 3 were used (*i.e.*, alpha = 1.5 and alpha = 10). Since the digestate is stored in an uncovered lagoon, the actual air exchange rate for the lagoon would be expected to be much higher than the values used in these calculations.

The diameter of the Fairborn facility's lagoon is approximately 222 feet, and the surface area of the lagoon = (3.14)(111 ft)² or 38,688 ft², and (38,688 ft²)(.0929 m²/ft²) = 3,594 m².

Calculation of the NH₃ emission for alpha = 1.5:

$$\begin{aligned} E &= 17.254 * 1.060^{15.5} * LD^{274} * TAN \\ &= (17.254)(1.060^{15.5})(1.5^{274})(89.7) \text{ mg NH}_3 \text{ m}^{-2} \text{ hr}^{-1} \\ &= (17.254)(2.47)(1.12)(89.7) \text{ mg NH}_3 \text{ m}^{-2} \text{ h}^{-1} \\ &= 4,282 \text{ mg NH}_3 \text{ m}^{-2} \text{ hr}^{-1} \\ (4,282 \text{ mg NH}_3/\text{m}^2 \text{ hr})(3,594 \text{ m}^2)(\text{gr}/1,000 \text{ mg})(\text{lb}/454 \text{ gr})(24 \text{ hr}/\text{day}) &= \underline{\underline{814 \text{ lbs NH}_3/\text{day}}} \end{aligned}$$

or, alternatively

Calculation of the NH₃ emission for alpha = 10.0:

$$\begin{aligned} E &= 17.254 * 1.060^{15.5} * LD^{274} * TAN \\ &= (17.254)(1.060^{15.5})(10.0^{274})(89.7) \text{ mg NH}_3 \text{ m}^{-2} \text{ hr}^{-1} \\ &= (17.254)(2.47)(1.88)(89.7) \text{ mg NH}_3 \text{ m}^{-2} \text{ hr}^{-1} \\ &= 7,187 \text{ mg NH}_3 \text{ m}^{-2} \text{ hr}^{-1} \\ (7,187 \text{ mg NH}_3/\text{m}^2 \text{ hr})(3,594 \text{ m}^2)(\text{gr}/1,000 \text{ mg})(\text{lb}/454 \text{ gr})(24 \text{ hr}/\text{day}) &= \underline{\underline{1,365 \text{ lbs NH}_3/\text{day}}} \end{aligned}$$

As mentioned above, both calculations assume air exchange rates that would be much lower than what would actually occur with an outdoor storage lagoon. Therefore, the calculated emission rates are conservatively low estimates of the daily ammonia PTE for the lagoon.

B. Ammonia Emission Estimates Based Upon the Emission Factor Contained in the EMEP/EEA Air Pollutant Emission Inventory Guidebook 2019

Table 3.3 of the Guidebook is entitled "*Table 3.3 Tier 2 EFs for source category 5.B.2 Biological treatment of waste – anaerobic digestion at biogas facilities; storage of digestate (open storage).*" Table 3.3 gives the following emission factor for the NH₃ emissions from the open storage of digestate:

$$\text{NH}_3 \text{ emissions} = 0.0266 \text{ kg NH}_3\text{-N per kg N in feedstock}$$

² Hill Laboratories, "Nitrogen Species" (<https://www.hill-laboratories.com/assets/Documents/Technical-Notes/Environmental/Nitrogen-Species-Tech-note-34247v2View.pdf>)

As previously stated, the maximum hourly feed rate for the Fairborn facility's digester is 4,950 gallons/hour consisting of: 2,925 gallons/hour of "food and wastewater"; 1,575 gallons/hour of "biosolids and wastewater"; and, 450 gallons/hour of hog manure. In the DMR data submitted by Renergy for its Fairborn facility during the period from January 13, 2016 through November 8, 2021, the TKN values for the digestate varied from a low of 11,000 mg/kg (on October 26, 2017) to a high of 129,000 mg/kg (on January 11, 2017). The TKN is a measure of the total nitrogen (N) in the sample.

The NH₃ emission factor is expressed in units of kg-NH₃ per kg N in the feedstock. The TKN values in Renergy's DMRs are for the digestate, not for the feedstock to the digester. For the calculation of the NH₃ emissions from the digestate lagoon, it has been assumed that the TKN values for the digestate lagoon represent the TKN values for the digester feedstock. This conservative assumption produces an artificially low ammonia emissions estimate because the TKN values for the feedstock would logically always be higher than the values for the digestate discharged from the digester to the lagoon.

Assuming (conservatively) that a gallon of digestate weighs the same as a gallon of water:

$$\begin{aligned} \text{max. feed rate} &= (4,950 \text{ gallons/hour})(8.34 \text{ lbs/gallon})(1.0 \text{ kg}/2.2 \text{ lbs}) = 18,765 \text{ kg feed/hour} \\ \text{max. TKN at max. feed rate} &= (18,765 \text{ kg feed/hour})(129,000 \text{ mg TKN/kg feed})(1.0 \text{ kg TKN}/106 \text{ mg TKN}) \\ &= 2,421 \text{ kg TKN in feed/hour} \\ &= (2,421 \text{ kg TKN in feed/hour})(24 \text{ hours/day}) = 58,104 \text{ kg TKN max. in feed/day} \\ \text{NH}_3 \text{ PTE} &= (0.0266 \text{ kg NH}_3\text{-N/kg N in feed})(58,104 \text{ kg TKN in feed/day})(2.2 \text{ lbs/kg}) = \underline{\underline{3,400 \text{ lbs NH}_3\text{/day}}} \end{aligned}$$

Ammonia is an "air contaminant" as that term is defined in Ohio's SIP at Ohio Rev. Code 3704.01(B), and a "toxic air contaminant" pursuant to Ohio Admin. Code Rule 3745-114-01. Broadly, an air contaminant source is "*de minimis*" under Ohio's SIP at Ohio Rev. Code 3704.011(A) and Ohio Admin. Code Rule 3745-15-05 if emissions of particulate matter, nitrogen oxides, organic compounds, sulfur dioxide, carbon monoxide, lead, or any other air contaminant from that source do not exceed ten (10) pounds per day, and the source does not emit more than one (1) ton per year of hazardous air pollutants. In light of the foregoing calculations, Renergy's digestate lagoon is clearly not a *de minimis* source of ammonia.

IV. ALLEGED VIOLATIONS OF THE CAA

Bath Township and the City of Fairborn allege that USEPA, Ohio EPA, and/or Renergy have violated and continue to violate both the CAA and the State of Ohio's SIP as follows:

1. From 2014 to the present, Renergy has operated the digestate lagoon at its Fairborn facility as an air emissions source without a PTIO in violation of the State of Ohio's SIP. USEPA and Ohio EPA have allowed Renergy to install and operate its digestate lagoon in violation of Ohio Admin. Code Rule 3745-31-02 of the State of Ohio's SIP.

2. From 2014 to the present, Renergy has emitted ammonia from its digestate lagoon and has not complied with the Ohio EPA Division of Air Pollution Control's Air Toxics Policy (attached as Appendix G). USEPA and Ohio EPA have allowed Renergy to emit ammonia without complying with Ohio EPA's Air Toxics Policy and Ohio Admin. Code Rule 3745-114-01 of the State of Ohio's SIP.
3. From 2014 to the present, Renergy has operated its digestate lagoon – which is an air contaminant source installed on or after August 3, 2006 with an ammonia PTE greater than ten (10) tons per year – without employing "best available technology" (BAT) as that term is defined in the State of Ohio's SIP and as required by Ohio Admin. Code Rule 3745-31-05(A)(3). USEPA and Ohio EPA have allowed Renergy to operate its digestate lagoon during this time without employing BAT (which may include, but may not be limited to, a cover over the lagoon with secondary control consisting of a packed bed scrubber).

V. PARTIES GIVING NOTICE

The parties giving notice, including their full names, addresses and telephone numbers are as follows (note that the parties should be contacted through undersigned counsel):

Bath Township, Greene County, Ohio
1006 Yellow Springs-Fairfield Road
Fairborn, Ohio 45234
Phone: 937.878.0611

The City of Fairborn, Ohio
44 West Hebble Avenue
Fairborn, Ohio 45234
Phone: 937.754.3030

Counsel for both parties consent to electronic service whenever permissible. To the extent physical service is required by any applicable statute, regulation, or rules of procedure, both parties consent to service in care of April Bott Moore, Esq. at Taft Law (address, below).

VI. CONCLUSION

Unless the violations of the Clean Air Act and Ohio's SIP alleged above are promptly remedied, Bath Township and the City of Fairborn intend to file suit in the United States District Court for the Southern District of Ohio sixty (60) days after your receipt of this letter. Please contact either or both of the undersigned legal counsel for the parties to further discuss the bases for our claims, or to explore options for timely and amicable resolution of this matter in lieu of litigation.

Sincerely,



William H. Haak

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Cleveland, Ohio

Attorney for Bath Township

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Sincerely,



April Bott Moore*

Taft Law

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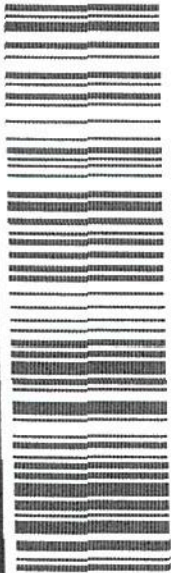
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**Admitted to Practice in Ohio*

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