

**From:** [Matthews, Jordan G. \(DNREC\)](#)  
**To:** [DAO, DNRECtory](#)  
**Subject:** Fw: TR\_BIC-00096 Air Permit Response  
**Date:** Wednesday, April 13, 2022 7:49:59 AM  
**Attachments:** [image003.png](#)  
[TR\\_BIC-00096.pdf](#)  
[BIC\\_DNREC Air Permit Response Letter\\_220407.pdf](#)

Please include in the file for BioEnergy Development Group, LLC. This is a response to a request for additional information related to the permit application for Permit: APC-2022/0049-CONSTRUCTION. Please let me know if you have any questions. Thanks!

**From:** Anna Alvino <aalvino@bioenergydevco.com>  
**Sent:** Monday, April 11, 2022 10:45 AM  
**To:** Matthews, Jordan G. (DNREC) <Jordan.Matthews@delaware.gov>  
**Cc:** Peter Ettinger <pettinger@bioenergydevco.com>; Christine McKiernan <cmckiernan@bioenergydevco.com>; Tressa Bathke <tbathke@bioenergydevco.com>; Brian Lynch <blyncha@duffnet.com>  
**Subject:** TR\_BIC-00096 Air Permit Response

Please see the attached transmittal and associated document. Let me know if you have any questions.

<b>WE ARE SENDING YOU</b>		
<input checked="" type="checkbox"/> Attached <input type="checkbox"/> Via:		
<b>DATE</b>	<b>FILE NAME</b>	<b>DESCRIPTION</b>
04/07/2022	BIC_DNREC Air Permit Response Letter_220407.pdf	DNREC Response Letter
<b>THESE ARE TRANSMITTED AS CHECKED BELOW:</b>		
<input type="checkbox"/> For Approval	<input type="checkbox"/> Approved as Submitted	<input type="checkbox"/> Resubmit for approval
<input type="checkbox"/> For Your Use	<input type="checkbox"/> Returned for Corrections	<input type="checkbox"/> Submit for distribution
<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Bids due:	<input type="checkbox"/> Other:

**Warm Regards,**  
**Anna Alvino**  
Support Specialist - Engineering  
[aalvino@bioenergydevco.com](mailto:aalvino@bioenergydevco.com)  
**BTS NORTH AMERICA**  
[bts-biogas.com](http://bts-biogas.com)

April 7, 2022

Mr. Jordan Matthews, P.E.  
State of Delaware - DNREC  
Division of Air Quality  
State Street Commons  
100 W. Water Street, Suite 6A  
Dover, DE 19904

Re: Bioenergy Devco.  
Request for Additional Information

Dear Mr. Matthews:

This letter is in response to the Department's letter dated March 30, 2022 requesting additional information regarding air permit applications submitted to the Department on January 12, 2022. The following responses correspond to the numbering system in the Department's request. Responses are indicated in **bold** font.

1. The Engineering Report included in the application cites "equipment malfunction" and "excessive gas production" as reasons for flare operation. Aside from that description, the Department is not clear on the circumstances during which the flare will operate.
  - a. To the extent possible, please specify the equipment malfunctions that would trigger operation of flare.

**An equipment malfunction that would require flare operation would include any equipment downstream of the digesters, including the biogas blowers or the membrane purification system. If the equipment downstream of the digesters is not operational, the biogas will be routed to flare.**

- b. Please provide a description of the instances in which "excessive gas production" would trigger operation of flare.

**This refers to the overproduction of biogas in the digesters. The biogas upgrading equipment is designed to treat 800 scfm of biogas for phase 1 and 1600 scfm of biogas for phase 2. If biogas production exceeds these flow rates, it will exceed the capacity of the gas upgrading system. While excessive gas production isn't expected to happen often, occasional fluctuations in feedstock could generate minor increases in biogas flow.**

- c. If applicable, please specify and explain any other instances in which operation of the flare would occur.

**See above.**

2. The application suggests that the proposed VOC/siloxane and H<sub>2</sub>S removal vessels are 100% efficient at removing these pollutants from the gas stream.
  - a. Please provide documentation from the manufacturer in which it clearly quantifies the estimated removal efficiency of the pollutants by the proposed equipment.

**See attached updated proposal and data sheet from the manufacturer.**

- b. This may include technical specifications or a formal written response from the manufacturer certifying the estimated removal efficiency of the equipment.
3. The Department is seeking clarification on the variations of biogas flow through process and control equipment. Please provide a narrative describing the potential pathways through which biogas may travel, beginning with generation in the anaerobic digesters and concluding with the final RTO and flare emission points. Additionally, please clarify whether simultaneous operation of the RTO and flare is possible.

**The biogas flow path has two potential routes:**

**Route 1 - normal operations: biogas generated in the anaerobic digesters flow to the biogas blower to boost the pressure of the biogas to ~5psig. The biogas will then flow to activated carbon vessels to remove the H<sub>2</sub>S in the raw biogas. The biogas will be fed to a feed gas compressor, where the pressure will be boosted to ~150psig. A coalescing filter is installed after the feed gas compressor to remove any carryover of oil in the gas. The next step is PSA vessels, where the VOCs and siloxanes are removed from the biogas. The polishing vessels will remove any trace VOCs or H<sub>2</sub>S. The 3-stage membrane system will separate the CO<sub>2</sub> from the CH<sub>4</sub>, which will be the product gas. The CO<sub>2</sub> from this stream will contain a small amount of methane and will be sent to the regenerative thermal oxidizer (RTO). Before reaching the RTO, the tailgas stream will be scrubbed of siloxanes prior to oxidation.**

**Route 2 - emergency operations to the flare: biogas generated in the anaerobic digesters flow to the biogas blower to boost the pressure of the biogas to ~5psig. The biogas will then flow to activated carbon vessels to remove the H<sub>2</sub>S in the raw biogas. After being scrubbed of H<sub>2</sub>S, the biogas will be routed to two lead-lag siloxane/VOC removal vessels to remove any contaminants before being flared.**

**The RTO and the flare would not operate simultaneously. The flare will only operate when the gas upgrading system is not receiving biogas, as explained in Question 1. The RTO is a component of normal operations, oxidizing the methane in the tailgas (waste gas) of the gas upgrading system.**

4. Based on the information provided in the application, the Department believes that the VOC/siloxane removal vessels located directly upstream of the RTO and flare should be considered air pollution control equipment. For the following reasons, an amendment to the potential to emit (PTE) calculation shall be submitted based on the uncontrolled emissions immediately downstream of the PSA system which would result if the VOC/siloxane removal vessels, RTO, and flare air pollution control equipment were not installed. The PTE calculation shall be based on the composition and flowrate of the gas at this point in the process.
  - a. A November 27, 1995 memorandum published by EPA focused on the "Criteria for Determining Whether Equipment is Air Pollution Control Equipment or Process Equipment" was consulted.
  - b. In that memorandum, it suggests considering three (3) questions when making judgement on whether equipment should be treated as pollution control or an inherent part of the process. Those questions, and the Department's determination for each, is outlined below:

- i. Is the primary purpose of the equipment to control air pollution?
  - 1. Based on its location in the process, VOCs and siloxanes from the biogas stream have already been isolated from the gas intended for use in the natural gas pipeline system. As such, the primary purpose of the equipment appears to be controlling air pollution through the reduction of the concentration of certain pollutants in the gas stream prior to combustion in the RTO or flare.
- ii. Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment? 1. The Department found no evidence of product recovery being achieved through the operation of the VOC/siloxane removal vessels. This question was deemed inapplicable.
  - 1. The Department found no evidence of product recovery being achieved through the operation of the VOC/siloxane removal vessels. This question was deemed inapplicable.
- iii. Would the equipment be installed if no air quality regulations are in place?
  - 1. The Department found no evidence that this equipment serves any purpose other than reducing contaminants prior to combustion in the RTO or flare.

**Revised PTE calculations are attached for the VOC/siloxane removal vessels located directly upstream of the RTO and flare.**

- 5. Information in the application suggests that the point at which breakthrough occurs in the H2S and VOC/siloxane removal vessels is approximately 6 months. The application indicates that the determination of breakthrough may be determined through monitoring of pressure drop across media or sampling of gas between in-series vessels.
  - a. Which method is proposed for use in monitoring the equipment for breakthrough?

**Use of both methods provides redundancy in monitoring breakthrough in the H2S and VOC/siloxane removal vessels. The pressure drop can be monitored remotely via the HMI, while the sampling between vessels will be part of the operator's daily checklist.**

- b. If pressure drop reading is preferred method, please provide information from the equipment manufacturer stating the recommended pressure drop ranges indicative of effective operation for purposes of verifying the information submitted in the application.

**The normal operating pressure drop across the adsorbers are as follows:**

**Activated Carbon Polishing Vessels:**

**Min: 16" WC**

**Max: 30" WC**

**H2S Removal Vessels:**

**Min: 33" WC**

**Max: 63" WC**

**Siloxane removal Vessels:**

**Min: 40" WC**

**Max: 60" WC**

6. The “Untreated biogas Characteristics” section of the “Filter Operations” page indicates that data from existing biogas plants was used in modeling of the project and estimating biogas quantity and characteristics. Please elaborate on the process that was used in estimating the quantity and composition of biogas expected to be generated in the proposed AD system as it relates to the type and quantity of feedstock proposed for use.

**Bioenergy Devco has built and assisted operations and maintenance for approximately 240 plants since 1996. The expected biogas quantity and quality is derived from said operating experience. Given that no two plants are identical, we believe the parameters stated in the air permit applications represent the best available information and are most representative of future operating conditions.**

7. The Engineering Report attached to the application discusses odor control at the site, with particular focus on the solid feedstock receiving area, but also makes mention of the feedtank separators prior to the solid separation of digestate downstream of the digesters.
  - a. For the solid feedstock receiving area, it is the Department’s understanding that it is the intention to maintain the area at a negative air pressure, but that this negative pressure will be achieved through the operation of a dilution exhaust fan which will vent the air through the roof/exterior of the building to the environment. The Department understands that quantification of emissions from this process may be difficult due to the nature of the activity, but requests submission of the following information:
    - i. The sequence of events involved in the unloading and transfer of solid feedstock and an estimated residence time of material in the area prior to transfer into the pre-tanks.

**Solid deliveries will enter the building, back in, and offload onto the walking floor area. The feedstock is then immediately conveyed and mixed with liquid feedstocks before being pumps to pre-tanks. The unloading and processing of a single load is approximately 30 minutes.**

- ii. A plan of action in the event that equipment malfunction, for example, prevents the unloading and transfer of solid feedstock from occurring in the manner in which it was designed.

**The design of the plant includes preventative measures to ensure that, in the event of an equipment malfunctions, the solid feedstock will be handled as designed:**

**There are three walking floor feeders. Typically, only one walking floor is required, or two may be required for maximum conditions. In the event one feeder malfunctions, there will be either one or two others available for use.**

**There will be an inventory of spare parts. In the event of an equipment malfunction, the other feeders will be used while maintenance is being done on the malfunctioning part.**

- b. For the feedtank separators portion of the process, it is the Department’s understanding that filters will be implemented to control odors. Please quantify and submit the pre- and post-control emissions anticipated to be generated in this area along with the specifications of the filters proposed for use.

**In lieu of use of a filter(s) to control potential VOC emissions (odors), Bioenergy Devco proposes to sample/monitor potential VOC/odor emission sources within 6 months of**

**achieving steady-state operations after plant startup. Once data is obtained, the data will be evaluated and controls will be added, if necessary to comply with applicable regulations.**

8. In reviewing the emissions generated from the combustion of biogas in the RTO and flare, it was observed that no emissions of NOX, CO, or PM were estimated, aside from those generated from the combustion of natural gas. Because these pollutants will be modeled in the application process, limited by the permit, and tested upon startup of the proposed equipment, the Department is requesting verification that additional emissions of these pollutants are not expected in the process of combusting the biogas.

**Additional emissions of NOx, CO or PM are not expected in the process of combusting the biogas.**

9. The distance from the flare to the property line was not specified in the application. Please submit this information.

**The distances to the property line are as follows: RTO – 337 ft, Flare – 388 ft, Generator – 330 ft.**

10. The application proposed limits on flare operation based on volume of biogas combusted. Please specify whether there will be systems in place to monitor and record the volume of natural gas and biogas combusted by the RTO and flare?

**There will be a separate meter from the utility that will measure combined natural gas going to the RTO and flare. The RTO and flare will each have a dedicated flow meter to quantify the amount of gas each unit combusts.**

11. The Engineering Report attached to the application indicates that the separated solid digestate “will be conveyed and discharged into a storage bunker and either marketed as a soil amendment product or transported to the adjacent compost facility for further processing.”

- a. Will this storage bunker be vented to the atmosphere?

**Yes.**

- b. And if so, have potential emissions from the storage of solid digestate been quantified?

**No potential emissions from the storage bunker have been quantified; however, based on operating experience at other similar facilities, no emissions are expected to exceed applicable regulatory thresholds.**

12. The Department anticipates testing of emissions from the RTO will be necessary to demonstrate compliance with emission limitations established by permit. Testing is typically required to be completed within ninety (90) days of achieving the maximum production rate at which the proposed equipment will be operated, but not later than 180 days after initial startup. In the case of the proposed anaerobic digestion system, the Department is interested in understanding the emissions generated while the anaerobic digestion system is operating at its maximum production rate. Please provide an estimate of when maximum gas generation will be achieved relative to startup of the proposed equipment.

**Maximum gas generation is expected to be achieved approximately 4.5 months from plant start-up.**

13. The AQM-4.2 forms submitted for the H<sub>2</sub>S and VOC/siloxane carbon adsorption systems indicate that temperature excursions are expected during the startup period when gas is introduced. Please elaborate on these excursions.

a. What causes the excursions?

**The media reacting with O<sub>2</sub>/H<sub>2</sub>O in the micropores.**

b. Is the temperature of the H<sub>2</sub>S and VOC/siloxane adsorption beds continuously monitored and recorded?

**The temperature can be seen in upstream and downstream transmitters.**

c. How long are the excursions expected to last?

**A few hours at most. The manufacturer has a method of “treating” and inerting the media prior to putting it online that has drastically reduced the temperature excursions that are typically seen. This includes introducing biogas after inerting and letting the gas assimilate with the vessel and media prior to introduction of live process gas. In the manufacturer’s experience, this has reduced the length, as well as the temperature range of the excursion.**

d. What is the expected impact of the excursion on the composition of the gas stream that is eventually emitted to the atmosphere?

**Little to none, as the temperature is not changing the CH<sub>4</sub>/CO<sub>2</sub> mixture.**

e. Are there any other expected instances where excursions are expected to occur?

**No, assuming proper procedures are followed regarding inerting.**

We trust this response is adequate. Should you need additional information, please contact me by e-mail at [pettinger@bioenergydevco.com](mailto:pettinger@bioenergydevco.com) or at (301) 943-4860.

Sincerely,



Peter Ettinger  
Chief Strategy Officer

PE/bl

Brian Lynch, P.E. – Verdantas LLC (w/attach)

Attachment

## H2S Removal Media

Make	Air Liquide
Manufacturer	Biospark
Model	Custom
Adsorber Type	Fixed Non-Regenerative
Description (If above is "Other")	Not Applicable (NA)
Maximum Gas Flow Rate to Adsorber (acfm)	1200
Maximum Temperature of Vapor Stream to Adsorber (°F)	120 (Gas Cooled by air fan)
Minimum Temperature of Vapor Stream to Adsorber (°F)	100 (Gas Cooled by air fan)
Minimum Moisture Content of Vapor Stream to Adsorber (%)	70%
Type of Adsorbent:	Cabot DARCO BG1 H2S Activated Carbon or equal + Support media (bottom layer of vessel)
Bed Height	26.5 Activated Carbon
Bed Length	36.5 Vessel with Heads and feet
Bed Width	N/A
Units (for above three dimensions)	Feet
Other Bed Dimension (optional)	Diameter
Value (for above optional dimension)	9
Units (for above optional dimension)	Feet
Minimum Pressure Drop Across Adsorbent (in. H2O)	33
Maximum Pressure Drop Across Adsorber (in. H2O)	63
Total Weight of Adsorbent (lbs)	88000
Total Weight of Adsorbent When Saturated (lbs)	127600
Maximum adsorbent Capacity (lbs Adsorbate/lbs Adsorbent)	45%
Set-up Type	Series (Lead-Lag)
Method of Determining Breakthrough (check all that apply)	
Continuous Emissions Monitor (CEM)	No
Replacement By Weight	Yes
Periodic Testing	Yes (main)
Sampling Frequency (if periodic testing)	Continuous
Sampling Device (if periodic testing)	Online H2S analyzer
Other	No
Description (if other)	N/A
Minimum Concentration at Breakthrough (ppmvd)	8 H2S
Handling Method of Saturated Adsorbent	Disposed of off-site (Vac-truck)
Method of Regeneration (if regenerated on-site)	N/A
Alternative Method to Demonstrate Control Apparatus is Operating Properly	Monitor Pressure Drop
Comments	Two configured as Lead – Lag each 9 diameter by 36.5 feet tall

**040522 GJM – H2S removal expected to be 100% removal efficiency assuming proper monitoring (including calibration of online H2S analyzer) of breakthrough and change out frequency of media if and when H2S breakthrough is seen.**

## Activated Carbon Tank

Make	Air Liquide
Manufacturer	Global Welding Services (GWS)
Model	Custom
Adsorber Type	Fixed Non-Regenerative
Description (If above is "Other")	Not Applicable (NA)
Maximum Gas Flow Rate to Adsorber (acfm)	<b>200</b>
Maximum Temperature of Vapor Stream to Adsorber (°F)	<b>50 (Gas Cooled by Chiller)</b>
Minimum Temperature of Vapor Stream to Adsorber (°F)	<b>60 (Gas Cooled by Chiller)</b>
Minimum Moisture Content of Vapor Stream to Adsorber (%)	5%
Type of Adsorbent:	<b>Calgon WS-480 + Support media (bottom layer of vessel)</b>
Bed Height	<b>12 Activated Carbon</b>
Bed Length	19.4 Vessel with Heads and feet
Bed Width	N/A
Units (for above three dimensions)	<b>Feet</b>
Other Bed Dimension (optional)	<b>Diameter</b>
Value (for above optional dimension)	<b>7</b>
Units (for above optional dimension)	<b>Feet</b>
Minimum Pressure Drop Across Adsorbent (in. H2O)	16
Maximum Pressure Drop Across Adsorber (in. H2O)	30
Total Weight of Adsorbent (lbs)	<b>22730</b>
Total Weight of Adsorbent When Saturated (lbs)	28400
Maximum adsorbent Capacity (lbs Adsorbate/lbs Adsorbent)	25%
Set-up Type	<b>Series (Lead-Lag)</b>
Method of Determining Breakthrough (check all that apply)	
Continuous Emissions Monitor (CEM)	No
Replacement By Weight	Yes
Periodic Testing	Yes (main)
Sampling Frequency (if periodic testing)	Weekly
Sampling Device (if periodic testing)	Draeger Tube or Portable Gas Analyzer
Other	No
Description (if other)	N/A
Minimum Concentration at Breakthrough (ppmvd)	10 ppm Xylene
Handling Method of Saturated Adsorbent	Disposed of off-site (Vac-truck)
Method of Regeneration (if regenerated on-site)	NA
Alternative Method to Demonstrate Control Apparatus is Operating Properly	Monitor Pressure Drop
Comments	<b>Two configured as Lead – Lag each 7 diameter by 19.4 feet tall</b>



**Date:** April 4th, 2022

**TO:** Tressa Bathke

**FROM:** Greg Myrick

**RE:** Siloxane Bed Treatment Proposal **REV4**

Dear Tressa:

Air Liquide Advanced Separations (**ALAS**) a division of Air Liquide Advanced Technologies U.S. LLC is pleased to provide this **FIRM** proposal for two (2) Activated Carbon Towers (ACTs) and associated media, valving and safeties per the scope below. The ACT is designed to handle 1800 SCFM raw feed flow with the expected siloxane and VOC concentration of 200 mg/Nm<sup>3</sup> and 500 mg/Nm<sup>3</sup>, respectively per email dated September 27th, 2021.

Removal efficiency of VOC/Siloxane removal expected to be 100% assuming proper monitoring and change out frequency of media if and when breakthrough of contaminants are seen.

• **ACT Vessel**

- a. Two (2) ACT vessels 104" diameter by 144" seam to seam – to be installed by others
- b. First fill of ACT Support Media, shipped loose to be loaded on site by customer
- c. ACT Foam Pads, shipped loose to be loaded on site by customer
- d. First fill of ACT Carbon Media, shipped loose to be loaded on site by customer
- e. Ten (10) double block and bleed valves for lead-lag configuration. Installation into interconnecting piping by others.
- f. Two (2) Pressure Relief Valves
- g. Pressure rating of the vessels is 250 PSIG at -20 to 200 F.

• **Piping**

- a. Piping installation and final welding by others
- b. Isolation with bypass and connection to inert is recommended to speed up change out time, not included
- c. Automated valves and check valves associated with Balance of Plant piping have not been included in this option



**FIRM Price (USD): \$585,700**

**Notes:**

1. Inerting prior to and after the work is not included
2. N2 gas not included
3. All materials FOB job site

**Payment Terms:**

- 15% ARO, net 30 days
- 35% 10 weeks ARO, net 30 days (anticipate major materials)
- 35% 20 weeks ARO, net 30 days (Prior to shipment)
- 15% 22 weeks ARO, net 30 days (receipt of vessel and confirmation of condition)

**Schedule:**

- 20 weeks after approval of ACT drawings (~22 weeks ARO)
- The ACT drawings will be available for review and approval 2-3 weeks ARO.

**Proposal Validity**

This proposal is **valid through May 16th, 2022**

**Mechanical Warranty**

ALATUS warrants all equipment provided by it or any of its subcontractors to be free of defects in workmanship and materials and against mechanical failure for a period of one (1) year from the start-up or eighteen (18) months from equipment shipment, whichever occurs first. ALATUS also warrants that all work performed by it or any of its subcontractors shall be performed in a good and workmanlike manner, with such warranty running for a period of one (1) year from the performance of the work in question.



Component warranties can be pursued with ALATUS or directly with the supplier. ALATUS will provide a replacement component upon request, ex-works ALATUS. Customer must return the faulty component to ALATUS as soon as possible so that ALATUS can obtain warranty coverage with the component manufacturer. Warranty coverage excludes normal wear and tear or damage due to improper operation.

Customer is responsible for installation of all warranty parts.

## SILOXANE FILTER EMISSION CALCULATIONS

### GIVEN

#### Biogas after H2S Removal (Stream 2)

Flow	1,600	SCFM
CH4	62	%
CO2	50	%
N2	1	%
O2	1	%
VOC	500	mg/Nm3
Siloxanes	200	mg/Nm3

#### Stream 5

Flow	658	SCFM
CH4	1.41	%
CO2	97.53	%
N2	0.08	%
O2	0.58	%
VOC	500	mg/Nm3
Siloxanes	200	mg/Nm3

#### Engineering data

Biogas density	1.15	kg/Nm3
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Removal efficiency %	100
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#### Conversion factors

2.535313	lb/Nm3
2.2046E-06	lb/mg
1.60747	SCFM/Nm3/hr

Note: Stream 2 OR Stream 5 could potentially enter the siloxane filter at any one time, but not both streams

### CALCULATIONS

#### Biogas after H2S Removal (Stream 2)

Flow Rate	2,572	Nm3/hr
Flow Rate	61,727	Nm3/day
Flow Rate	156,497	lb/day

#### Stream 5

Flow Rate	1,058	Nm3/hr
Flow Rate	25,385	Nm3/day
Flow Rate	64,359	lb/day

### Uncontrolled

#### Biogas after H2S Removal (Stream 2)

				at 8,760 hours		
CH4	4,043	lb/hr	97,028	lb/day	17,708	ton/yr
CO2	3,260	lb/hr	78,248	lb/day	14,280	ton/yr
N2	65	lb/hr	1,565	lb/day	286	ton/yr
O2	65	lb/hr	1,565	lb/day	286	ton/yr
VOC	2.8	lb/hr	68	lb/day	12	ton/yr
Siloxanes	1.1	lb/hr	27	lb/day	5	ton/yr

### Controlled

#### Biogas after H2S Removal (Stream 2)

				at 8,760 hours		
CH4	4,043	lb/hr	97,028	lb/day	17,708	ton/yr
CO2	3,260	lb/hr	78,248	lb/day	14,280	ton/yr
N2	65	lb/hr	1,565	lb/day	286	ton/yr
O2	65	lb/hr	1,565	lb/day	286	ton/yr
VOC	0.000	lb/hr	0.0	lb/day	0.0	ton/yr
Siloxanes	0.000	lb/hr	0.0	lb/day	0.00	ton/yr

#### Stream 5

				at 8,760 hours		
CH4	38	lb/hr	907	lb/day	166	ton/yr
CO2	2,615	lb/hr	62,770	lb/day	11,455	ton/yr
N2	2	lb/hr	51	lb/day	9	ton/yr
O2	16	lb/hr	373	lb/day	68	ton/yr
VOC	1.2	lb/hr	28	lb/day	5	ton/yr
Siloxanes	0.5	lb/hr	11	lb/day	2	ton/yr

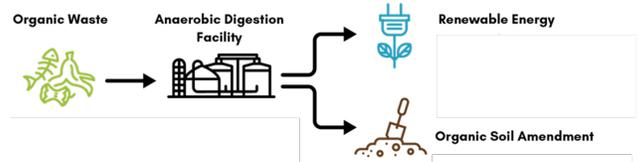
#### Stream 5

				at 8,760 hours		
CH4	38	lb/hr	907	lb/day	166	ton/yr
CO2	2,615	lb/hr	62,770	lb/day	11,455	ton/yr
N2	2	lb/hr	51	lb/day	9	ton/yr
O2	16	lb/hr	373	lb/day	68	ton/yr
VOC	0.000	lb/hr	0.0	lb/day	0.0	ton/yr
Siloxanes	0.000	lb/hr	0.0	lb/day	0.00	ton/yr



50 STATE CIRCLE ANNAPOLIS, MD 21401  
 INFO@BIOENERGYDEVCO.COM

LETTER OF TRANSMITTAL  
 TR\_BIC - 00096



TO: JORDAN MATTHEWS

DATE: 04/07/2022

CC: PETER ETINGER  
CHRISTINE MCKIERNAN  
TRESSA BATHKE  
BRIAN LYNCHA

PROJECT: BIOENERGY INNOVATION CENTER (BIC)

RE: AIR PERMIT RESPONSE

WE ARE SENDING YOU

Attached  Via:

DATE	FILE NAME	DESCRIPTION
04/07/2022	BIC_DNREC Air Permit Response Letter_220407.pdf	DNREC Response Letter

THESE ARE TRANSMITTED AS CHECKED BELOW:

<input type="checkbox"/> For Approval	<input type="checkbox"/> Approved as Submitted	<input type="checkbox"/> Resubmit for approval
<input type="checkbox"/> For Your Use	<input type="checkbox"/> Returned for Corrections	<input type="checkbox"/> Submit for distribution
<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Bids due:	<input type="checkbox"/> Other:

COMMENTS: \_\_\_\_\_