MEMORANDUM

TO: Lisa A. Vest
Hearing Officer

FROM: Jordan G. Matthews, P.E. JGM
Engineer

Derrick P Caruthers, P.E. DC
Engineer

Adam Schlachter
Program Manager

SUBJECT: Technical Response Memorandum for Bioenergy Development Company, LLC (BDC), located at 28338 Enviro Way, Seaford, Delaware.

DATE: March 29, 2023

INTRODUCTION

Lisa Vest, Public Hearing Officer, requested a Technical Response Memorandum (TRM) to provide expert technical assistance for the Hearing Officer's Report and recommendations to the Secretary with regard to the pending permit applications for a Division of Waste and Hazardous Substances Resource Recovery Permit, Division of Air Quality 7 DE Admin. Code 1102 Natural Minor Permits and Division of Water Wastewater Facility Construction Permits to expand the existing organic waste composting operation to include an anaerobic digestion system, a wastewater pretreatment system and a biogas upgrading plant located at 28338 Enviro Way, Seaford, Delaware.

PROJECT SITE

The property is located at 28338 Enviro Way, Seaford, Delaware (tax parcel: 1-32-11.00-41.00 & 41.02, 1-32-6.00-88.01 & 95.00).

PROJECT DESCRIPTION

The Bioenergy Innovation Center, located at 28338 Enviro Way, is currently permitted to accept organic waste from approved poultry industry sources for composting.

The proposed expansion includes construction of an anaerobic digestion system, a wastewater pretreatment system and a biogas upgrading plant. There will also be an emergency generator. Byproducts from the process would include pipeline-grade renewable natural gas (RNG) and digestate, which would be dewatered and is proposed for use in the adjacent compost facility or to be marketed, in the future, as a soil amendment (this would require a Distribution and Marketing permit that is not part of the current project and applications).

The proposed facility would have the capacity to receive and process up to 250,000 tons per year of permitted organic waste.

The project requires permits from three Department of Natural Resources and Environmental Control (DNREC) divisions:

- A **Resource Recovery Permit** from the Division of Waste and Hazardous Substances,
- Two **Natural Minor Permits** from the Division of Air Quality, and
- Two **Wastewater Facility Construction Permits** from the Division of Water

The Resource Recovery Permit would provide permission to construct an anaerobic digestion system, biogas

upgrading plant, and compost facility. The facility would be designed to process poultry industry wastes into digestate, pipeline-grade renewable natural gas (RNG), and compost. Wastes the facility would accept include poultry litter, hatchery waste, dissolved air flotation (DAF) solid cake and liquid sludge, offal, waste activated sludge, agricultural residuals (e.g., soybean husks, etc.) from feed operations, and fats, oils, and greases. The capacity of the proposed facility is 250,000 tons per year. It should be noted that the initial draft proposed Waste and Hazardous Substances Resource Recovery Permit had a tonnage limit of 256,000 tons per year of material throughput; however, this has been downgraded to reflect the correct 250,000 ton per year limit for consistency with the other permit applications submitted for this project and resulting proposed draft permits.

The Division of Air Quality Permits would provide permission to construct one natural gas fired emergency generator with a standby power rating of 1,082 KW (1,451 HP) and four anaerobic digesters with associated biogas upgrade and air pollution control equipment. The facility is proposed to receive and anaerobically digest poultry industry liquid and solid cake DAF waste, poultry litter, and bioreactor sludge from the on-site wastewater plant. Biogas generated during the anaerobic digestion process would be filtered and conditioned to meet the standards required for use in the natural gas pipeline grid. The digestate produced would be dewatered and is proposed for use in the adjacent compost facility. A series of filtration equipment would be used to refine the gas and separate unwanted compounds from the product gas stream. The unwanted gas stream would be combusted by a regenerative thermal oxidizer (RTO) or, in the event of equipment maintenance or excessive biogas production, a flare prior to emission into the atmosphere.

The Wastewater Facility Construction Permits would provide permission to construct an anaerobic digestion system and a wastewater pretreatment system as part of the proposed resource recovery facility. The anaerobic digestion system and wastewater pretreatment system would include three 0.208-million-gallon pretreatment tanks and four 1.95-million-gallon fermentation tanks, a membrane bioreactor system (MBR), a 0.198-million-gallon anoxic tank, a 0.412-million-gallon aerobic reactor, a 0.198-million-gallon ultrafiltration feeding tank and ultrafiltration and reverse osmosis treatment systems. The treated wastewater would be pumped and hauled to the Seaford wastewater treatment and disposal facility. A future construction phase would eliminate the need to transport the wastewater via truck by constructing a sanitary sewer pump station and force main that would connect to a future City of Seaford force main located in front of the site on Seaford Road.

PUBLIC PARTICIPATION

On August 21, 2022, DNREC issued a Joint Public Notice of permit applications and of a Joint Virtual Public Workshop to be held by DNREC on September 28, 2022, and of a Joint Virtual Public Hearing to be held by DNREC on October 26, 2022. On September 23, 2022, DNREC issued an update to the Joint Public Notice to reflect an emission change for a draft Divisions of Air Quality Permit and updated supporting documentation for a Division of Water draft permit. The September 23, 2022, update to the Joint Public Notice was also translated to Spanish and Haitian-Creole. The translated Joint Public Notices were made available on DNREC's website on October 13, 2022. The public record closed on December 2, 2022. The public comment period was 103 days.

During the public comment period DNREC received 189 public comments. Twenty-seven comments were submitted orally during the public hearing and 162 written comments were submitted either before or after the public hearing.

PUBLIC HEARING

On behalf of DNREC, Hearing Officer, Ms. Lisa A. Vest, conducted the public hearing. Mr. Jordan Matthews presented an overview of the permit applications for the Division of Air Quality. Mr. Derrick Caruthers presented an overview of the permit applications for the Division of Water Quality. Mr. Adam Schlachter presented an overview of the permit application for the Division of Waste and Hazardous Substances. Mr. Peter Ettinger and Ms. Christine McKiernan presented an overview of the project on behalf of the company.

Detailed below are DNREC's responses to the comments provided during the October 26, 2022, Virtual Public Hearing and prior to the December 2, 2022, closing of the administrative public hearing record for the permit applications associated with Bioenergy Development Company, LLC's request to expand the existing organic waste composting operation to include an anaerobic digestion system, a wastewater pretreatment system and a biogas upgrading plant located at 28338 Enviro Way, Seaford, Delaware.

Since many of the comments provided were similar, where possible, they have been combined and edited for clarity and brevity in the table. Verbatim statements can be found in the *BIOENERGY DEVELOPMENT CORPORATION APPLICATIONS*, the Hearing Transcript prepared by Wilcox & Fetzer, Ltd, and the public comments posted on the DNREC webpage. Additionally, Bioenergy Development Company, LLC provided responses, via email with attached letter dated March 2, 2023. This response document is attached for your reference.

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The proposed project represents a threat to public health.	Emissions from the facility's emission points were modeled using the AERSCREEN modeling program in order to calculate the Maximum Downwind Concentration (MDC) of the anticipated criteria pollutants, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs). The modeling results were compared against pollutant-specific significant impact levels (SILs) and heath-based screening levels and were determined to meet the Department's screening criteria. As such, the public health, safety, and welfare are presumed to not be adversely impacted by the proposed process. If permits are issued, they will require increased air monitoring around joints for any gas leaks and monitoring of groundwater for potential nutrient migration.
A cumulative health impact analysis should be conducted prior to making any permitting determinations.	A Cumulative Health Impact study is not required under Federal or State regulations. However, under the Solid and Hazardous Waste Management regulations an Environmental Assessment was required and performed as part of the resource recovery application process. The results of this assessment identified those factors which are critical to ensure permits are inclusive when they are written. In this case, each factor of the Environmental Assessment that was identified has been included in the permits the Department is issuing. In addition, as part of the Environmental Assessment, DNREC has a baseline of conditions at and around the facility prior to operation of any new

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	equipment. As a result, if permits are granted, DNREC can determine if any environmental impacts from the operation are occurring and can require operational adjustments if needed. Emissions from the facility's emission points were modeled using the AERSCREEN modeling program in order to calculate the Maximum Downwind Concentration (MDC) of the anticipated criteria pollutants, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs). The modeling results were compared against pollutant-specific significant impact levels (SILs) and heath-based screening levels and were determined to meet the Department's screening criteria. As such, the public health, safety, and welfare are presumed to not be adversely impacted by the proposed process. In addition, if permits are issued, they will require increased air monitoring around joints for any gas leaks and monitoring of groundwater for potential nutrient migration.
The proposed project is located in/adjacent to Environmental Justice Communities.	DNREC places a high priority on engaging with stakeholders in a transparent and public process for reviewing permit applications. DNREC is particularly interested in hearing concerns from residents who live in environmental justice (EJ) communities. DNREC heard from EJ advocates regarding concerns about this project and its potential impact on EJ communities nearby. Subsequently, DNREC met with environmental justice advocates on several occasions, including 7/11/2022, 7/13/2022, 9/2/2022, 9/29/2022, and 10/11/2022. DNREC provided advocates with a handout explaining the permitting process (in both English and Spanish) on 7/18/2022. DNREC reached out directly to a representative of Ebenezer Haitian SDA Church in Seaford on 9/21/2022 to offer support to ensure their congregation's

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	meaningful participation in the 9/28/2022 community workshop but was unable to connect. Additionally, DNREC made two visits (10/11/2022 and 10/28/2022) to the area to gain a firsthand understanding of the local community. On October 13, 2022 the public notice and workshop presentations were posted on DNREC's website in both Spanish and Haitian Creole. Prior to the hearing, the public notice (in English, Spanish and Haitian Creole) was posted in the Sussex Manor Mobile Home Park Office. The actions listed above are some of the efforts DNREC undertook to ensure an accessible public process, with particular interest in reaching a Haitian Creole community proximate to the proposed project. To enhance information sharing between the facility and the surrounding communities in response to public comments, DNREC has added a permit condition to all proposed draft permits requiring Bioenergy Development Company, LLC to submit a Community Engagement Plan to DNREC for approval. The plan shall include at a minimum 1) a list of communities that will be included in engagement efforts, 2) goals of engagement efforts, 3) a meeting schedule for engagement events, and 4) a plan for meaningful engagement, including appropriate translation services.
The regulatory process needs to be transparent and give members of the public a voice in the process. In addition, it is inappropriate to hold one public hearing covering five permits as it does not give the public adequate time to review the information.	On August 21, 2022, DNREC issued a Joint Public Notice of permit applications and of a Joint Virtual Public Workshop to be held by DNREC on September 28, 2022, and of a Joint Virtual Public Hearing to be held by DNREC on October 26, 2022. On September 23, 2022, DNREC issued an update to the Joint Public Notice to reflect an emission change for a draft Divisions of Air Quality Permit and updated supporting documentation for a Division of Water draft permit. The September 23, 2022, update to the Joint Public Notice was also translated to Spanish and Haitian-Creole. The translated Joint

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	Public Notices were made available on DNREC's website. The public record closed on December 2, 2022. The public comment period was 103 days. During the public comment period DNREC received 188 public comments. Twenty-seven comments were submitted orally during the public hearing and 162 written comments were submitted either before or after the public hearing. The public notice requirements of 7 Del Code Chapter 60 were followed. Additional outreach was also conducted. This included translation of the legal notices, the opportunity to review draft permits, a public workshop and translation services for both the public workshop and public hearing. DNREC coordinated the public process for these permits in an effort to streamline the process for the public and demonstrate how the project was being reviewed holistically.
The facility should be evaluated in its entirety and should not be individually permitted.	Based upon State of Delaware environmental regulations, each program must issue separate permits pursuant to their authority. However, each Division within the Department of Natural Resources and Environmental Control works collaboratively with other programs to ensure that projects are properly coordinated as evidenced by the combined public notice and hearing associated with this proposed project. Similar to landfills built in the State, resource recovery facilities must complete a separate construction phase and a third-party certification must be submitted to the Division of Waste and Hazardous Substances for approval before operations can commence. This is in addition to ensuring all other permits have been applied for or issued that are necessary prior to operations commencing.
The proposed project contributes to Climate Change by generating methane gas to be used as a fuel. Potential methane leaks will also contribute to Climate Change.	The proposed project will anaerobically digest poultry industry liquid and solid cake DAF waste, poultry litter, and bioreactor

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	sludge from the on-site wastewater plant. Biogas generated during the anaerobic digestion process would be filtered and conditioned to meet the standards required for use in the natural gas pipeline grid. While methane can be obtained from fossil fuels, the methane created from anaerobic digestion is biogenic. Methane generation occurs naturally as organic wastes decompose. Harnessing this methane for a beneficial use may be a feasible strategy for low or zero carbon energy in the future. It also supports the climate action plan strategy to "increase renewable natural gas production and incentivize markets for its use as a fuel." Finally, while methane does have a higher global warming potential when compared to carbon dioxide, it also has a shorter life in the atmosphere. The proposed project will also be equipped with a computerized maintenance management system for preventative and routine maintenance. The facility will also be equipped with an automated methane detection system. In addition, the lines will be tested on a reoccurring basis to prevent methane leaks. Please see the attached Bioenergy Development Company, LLC response and the draft Resource Recovery Permit for the full maintenance and testing plan. Finally, the updated Resource Recovery draft permit includes additional language requiring Bioenergy Development Company, LLC to conduct monthly real-time monitoring of the joints and potential leak areas to ensure that seals are operating properly.
The proposed project poses a fire and explosion risk.	Section 112(r) of the Clean Air Act, "requires facilities that use extremely hazardous substances to develop a Risk Management Plan which identifies the potential effects of a

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	chemical accident, identifies steps the facility is taking to prevent an accident, and spells out emergency response procedures should an accident occur" (https://www.epa.gov/rmp/risk-management-program-rmp-rule-overview). DNREC has an Accidental Release Prevention (ARP) group who is responsible for facility compliance with implementation of the Federal Risk Management Program (RMP) Rule. Applicability of this program is determined after construction of a facility. If permitted, Bioenergy Development Company, LLC will be evaluated to see if their process requires compliance with the RMP program. As a proactive step, DNREC staff requested information from the company about their existing facility in Maryland, which operates a similar process to what they would like to install in Delaware. The facility in Maryland is not part of the federal RMP program. The RMP program can be seen as an indicator of risk. Because the facility will likely not trigger the program, that indicates that the risk associated with operating the proposed facility is low. Bioenergy Development Company, LLC has submitted their emergency plan, and that is part of the hearing record. Methane and hydrogen sulfide detectors will be placed throughout the proposed facility. These detectors will continuously monitor for potentially dangerous levels of gas at the facility. The proposed project will follow emergency shutdown stop (ESTOP) procedures when monitoring indicates a potential issue. If an emergency shutdown is initiated, all biogas from the digesters will be routed to the flare until normal operating conditions can resume. The facility is equipped with a fire suppression system that will include a 66,000-gallon water tank. Site plans for the proposed facility have been approved by the Delaware State

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	Fire Marshall's Office. Please see the attached Bioenergy Development Company, LLC response for additional information regarding site safety. Finally, the updated Resource Recovery draft permit includes additional language requiring Bioenergy Development Company, LLC to conduct monthly real-time monitoring of the joints and potential leak areas to ensure that seals are operating properly.
The proposed project will increase truck traffic.	DNREC does not regulate traffic. The lead state agency overseeing traffic flow and volume in the State of Delaware is the Delaware Department of Transportation (DelDOT). According to the applicant, an increase in traffic on Seaford Road will be less than 1.5%. DelDOT has approved the entrance permit for an anticipated average daily traffic of 166 vehicles. Please see the attached Bioenergy Development Company, LLC response for additional information regarding truck traffic.
The activities associated with the project will result in increased air emission and associated negative health impacts.	The Division of Air Quality conducts thorough technical reviews of all permit applications to ensure that the proposed sources comply with all State and Federal air quality rules and regulations. While the proposed project would represent a new stationary source of air emissions, the feedstocks proposed for use in the anaerobic digestion system would otherwise emit pollutants to the air in an uncontrolled manner via other methods of waste management. Furthermore, emissions from the facility's emission points were modeled using the AERSCREEN modeling program in order to calculate the Maximum Downwind Concentration (MDC) of the anticipated criteria pollutants, volatile organic compounds (VOCs), and hazardous air pollutants (HAPs). The modeling results were compared against pollutant-specific significant impact levels (SILs) and heath-based screening levels and were determined to meet the Department's screening criteria. As such, the public health, safety, and welfare are presumed to not be

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	adversely impacted by the proposed process.
The draft air permits do not consider emission from all of the activities at the facility.	Since this project is located at a natural minor source, each emission or process unit is permitted individually pursuant to 7 DE Admin. Code 1102. The facility wide emissions, including both existing and proposed stationary, point sources, are considered in the associated technical memorandum, and indicate that the facility is a true natural minor source. The potential to emit and emission limitations for the facility's emission sources were based on worst case scenarios and determined using a combination of Environmental Protection Agency (EPA) guidance documents, appropriate emission factors, and other information submitted in the application. The existing compost plant continues to operate under the requirements of **Permit: APC-2016/0093-Operation (Amendment 03)**. No changes to the compost plant's operations have been proposed to, or approved by, DNREC. Any changes in operation at the compost facility, would be contingent upon DNREC receiving and approving an air permit application to do so. The facility's existing emergency generator has a rated capacity below the threshold for which a permit is required.
The air permit application does not meet all of the regulatory requirements of 7 DE Admin. Code 1102.	A thorough technical review of the permit application was conducted. There were several requests for additional information made to the applicant, as well as independent research performed by the Division of Air Quality to ensure the accuracy of the information submitted. The draft permit and associated technical memorandum were not developed until the required information was obtained. DNREC considers the permit application administratively and technically complete.
The technical requirements and controls in the draft air permits are insufficient to address air pollution from the project. Both general and specific concerns were listed.	The draft air permit for the anaerobic digestion system contains emission limits, operating limits, methods of demonstrating compliance, and testing requirements which

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Specific concerns included: • A lack of visible emission monitoring requirements, • Requiring the use of the most sensitive Draeger tubes available for the purposes of measuring breakthrough air pollutants, • The combined nitrogen oxide (NO_X) emissions from the regenerative thermal oxidizer and flare exceed the threshold for Minor New Source Review (MNSR). • A lack of description of the chemical composition of trade waste which might be generated from the construction or vehicular traffic associated with the proposed project.	address the general concerns expressed in the comments received. Those include but are not limited to: • Odor and opacity standards which are coupled with requirements to conduct corresponding surveys and observations and instruction on corrective action to be taken in the case that standard-exceeding conditions is observed. • Operating limitations on the volume of biogas combusted by the proposed control equipment. • Operating limitations on the instances in which the proposed control equipment may operate. • Monitoring activities and operating standards related to the proposed control equipment. • Testing Requirements, to verify compliance with the draft permit emission limits for the regenerative thermal oxidizer (RTO) and the exhaust fans from the solid feedstock receiving area. With respect to the specific concerns: • While DNREC believes the stringency of the visible emission observation requirements provided in the draft permit are adequate and consistent with similar sources, they have been strengthened in the updated draft permit. • Monitoring language in the updated draft permit has been strengthened to require that all equipment used for the purposes of monitoring air pollution control equipment pollutant breakthrough have a sensitivity capable of detecting the pollutant's minimum breakthrough concentration.

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	• The updated draft permit includes language to restrict the combined regenerative thermal oxidizer and flare NO_X emissions to less than five tons per year to add clarity regarding Minor New Source Review applicability. • While the Division of Air Quality does not consider dust generated by vehicular traffic or construction activity to be "trade waste" under the definition in 7 DE Admin. Code 1101, the language used in the draft permits was written to be as encompassing as possible. Despite the focus on stationary, point sources of air pollution, the draft permits also included conditions limiting other activities, such as the idling of heavy-duty vehicles and the potential generation of particulate matter from construction and materials handling, where there was a regulatory basis to do so.
Chemicals from the process may be released into the groundwater and surface water. A release of these chemicals will degrade water quality in the receiving watersheds.	The engineering report states that the water collected in the building and equipment drains will be sent to the wastewater treatment portion of the system with the intention to eliminate unpermitted discharge of water. The proposed design incorporates a spill pad at the liquids receiving area that can contain 2,304 gallons and will connect to a trench drain that will route back to a sump that will be connected to the wastewater treatment system in order to handle potential maximum spill volumes. It is proposed that all process wastewater generated at the facility will be pretreated onsite and subsequently disposed of at the Seaford Wastewater Treatment Facility. Initially, treated effluent will be trucked to the Seaford Wastewater Treatment Facility for disposal.

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	Eventually a pump station and force main will be constructed to connect the facility to sewer to directly send treated effluent to the Seaford Wastewater Treatment Facility. Loading, unloading, and storage of feedstocks and digestate will occur undercover or within buildings/tanks to avoid exposure to stormwater and thereby mitigate the potential for stormwater pollution. The facility will be required to generate a Storm Water Plan for DNREC review and approval and obtain National Pollutant Discharge Elimination System (NPDES) Industrial Storm Water General Permit coverage prior to going into operation to assure storm water pollution best management practices (BMPs) are in place to mitigate the potential for polluted storm water runoff from the facility. In addition, in consideration of the public comments received, the Division of Waste and Hazardous Substances has revised the Bioenergy Development Company, LLC draft Resource Recovery Permit to include ongoing groundwater monitoring. As part of the initial hydrogeological assessment, DNREC required that five (5) wells be installed to determine a baseline impact. Bioenergy Development Company, LLC will be required to provide ongoing monitoring of these five (5) wells on a semi-annual basis to ensure that no migration of nutrients occurs off site.
The Seaford Wastewater Treatment Plant (WWTP) may not be able to handle the additional wastewater generated from the proposed treatment process. In addition, the Seaford WWTP does not process industrial waste that will be generated from the proposed process.	The draft construction permit for the wastewater pretreatment membrane bioreactor (MBR) system has a Special Condition that states: "Construction of the wastewater Membrane Bioreactor (MBR) pretreatment system shall not begin until the permittee has submitted a letter from the wastewater treatment facility that will be receiving the treated effluent confirming the following: (1) that the receiving facility will accept responsibility for treating and disposing of the wastewater, and (2) that the receiving facility has capacity to

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	accept the treated effluent and without causing violations of the receiving facility's disposal permit or 7 Del.C., Chapter 60 and the regulations promulgated thereafter." The City of Seaford has also provided documentation stating that 60,000 gallons per day of capacity has been reserved at the Seaford Wastewater Treatment Facility for the proposed Bioenergy Development Company, LLC project. In addition, the Resource Recovery Permit also requires this agreement be in place prior to the operation of the facility.
Baseline water analysis and tests should be conducted prior to issuing a permit.	Under the Solid and Hazardous Waste Management regulations a Hydrogeologic Assessment was required, and the results were included as part of the resource recovery application package. The Hydrogeologic Assessment required that five (5) wells be installed around the perimeter of the property to establish a baseline for groundwater analysis. Bioenergy Development Company, LLC was instructed to keep these wells in place, and they will be sampled quarterly to analyze for any potential nutrient migration as a result of operations. If permits are granted, DNREC can determine if any environmental impacts from the operation are occurring and can require operational adjustments if needed.
The process uses a large amount of water for treatment of the wastewater.	Section 2.3.1. of the Operation Plan states: On-Site Water Supplies The facility is served by an existing private well which provides water for both potable uses and fire protection. Up to an estimated 35,000 gallons per day of water from existing on-site wells is required for the operations of the Facility and a portion of treated wastewater is also recycled for use in the Facility. During the testing, start-up and commissioning of the Facility, stormwater stored in the on-site lagoons is expected to be used and recycled through the Facility to eliminate the need for fresh water.

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	The proposed water usage from the wastewater treatment process utilizes up to 35,000 gpd of water from existing on-site wells. This is considered a minor groundwater withdrawal, being below the 50,000 gallons per day requirement for a water allocation permit from the Department pursuant to 7 DE Admin. Code 7303, and is authorized by the well construction permit for the existing well.
The site must be closely inspected and regulated due to the proximity of residences and sensitive water receptor areas.	DNREC staff regularly inspects the construction of wastewater treatment facilities to ensure they are built in accordance with the approved Plans and Specifications. Any deviations from the approved plans require DNREC approval and the submission of an As-built plan that shows the changes from the original approved Plans. In addition, any permits that are issued by DNREC will require follow up inspections at the facility on a regular basis to ensure that the requirements of the permit are being met.
The site design and permits for controlling runoff and stormwater should go beyond minimum requirements.	Modifications were made to the outlet structure of the stormwater facility that serves the composting operation, including the installation of aerators designed to enhance storage capacity and minimize surface water discharge through evaporation of stormwater collected in the system. The proposed stormwater management design for the stormwater facility that serves the former pelletizing plant will consist of one proposed and one existing wet extended detention pond designed to reduce the peak amount of stormwater runoff. The wet pond facility design incorporates requirements from the Green Technology Best Management Practices Design Manual to provide stormwater storage of 48 hours of detention time for the 1-year storm and management of the 100-year event. In addition, the facility will be required to generate a Storm

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	Water Plan for DNREC review and approval and obtain National Pollutant Discharge Elimination System (NPDES) Industrial Storm Water General Permit coverage prior to going into operation to assure storm water pollution best management practices (BMPs) are in place to mitigate the potential for polluted storm water runoff from the facility.
Extreme rainfall events should be considered in site design and approval.	The engineering report states that a National Pollutant Discharge Elimination System (NPDES) general permit for industrial stormwater is in place for the facility and that Bioenergy Development Company, LLC has submitted a Notice of Intent to implement system enhancements. The wet pond facility was designed to provide stormwater storage of 48 hours of detention time for the 1-year storm and management of the 100-year event. Pond freeboard is also required in the design and can be utilized for temporary storage of stormwater during an extreme rainfall event.
Out of state waste should not be accepted for use at the facility.	The United States Constitution retains to Congress the power to regulate commerce amongst states. Because there are Constitutional implications for government actions that seek to burden interstate commerce, government must demonstrate sufficient reasons to impose those burdens. There are currently no regulatory provisions related to limiting the origins of wastes or products (as applicable) used within the proposed facility. As a result, a permit condition limiting the processing of waste at the proposed facility to only waste generated within Delaware is not Constitutionally allowed.
The waste that would be treated by the proposed project should be treated in alternate ways.	Currently the wastes being produced by the industries served by the proposed project are either being land applied (via Nutrient Management with Department of Agriculture), in agricultural fields or landfilled as waste. With land application, the nutrients from this material have the ability to migrate into Delaware's watersheds. In the case of landfilling, gasses are generated and managed by the gas collection system

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	at Delaware Solid Waste Authority landfills. The proposed process of digestion in conjunction with the compost facility that is part of this site creates a more stable nutrient product that is better for Delaware's watersheds. Bioenergy Development Company, LLC plans to market the compost (which contains the digestate) to a mix of in-state and regional locations, supported by letters of intent to buy the material once it's available. The more stable compost material will be utilized and/or exported to areas where it is needed rather than directly discharged as a raw waste product to agricultural lands or sent to a landfill, reducing the burden on regional watersheds.
There is a lack of permits and markets for the products associated with the anaerobic digestion process.	Bioenergy Development Company, LLC has provided a number of markets which DNREC has verified as viable opportunities to purchase the compost being produced from the digestate that will come from the anaerobic digesters. While the current primary use of digestate is as a wetting agent utilized in the production of compost, other end uses may be approved by DNREC in the future. Based on analytical data submitted to DNREC, the digestate contains nutrients which are essential for plant grown. Thus, the digestate could be utilized as a fertilizer in additional end uses including but not limited to application onto farm fields, growing turf grass, at nurseries, or other DNREC approved end uses. The land application of waste products like Bioenergy Development Company, LLC's digestate are regulated under 7 DE Admin. Code 7103, Delaware Guidance and Regulations Governing the Land Treatment of Waste, Part V, "The Land Treatment of Waste Products" (the Waste Regulations). Specifically, Section 162.1 of the Waste Regulations states, "This document provides regulations for all

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	people engaged in the handling, marketing or agricultural utilization of non-hazardous waste products generated by industrial or commercial activities which will be utilized in agricultural or horticultural setting as a fertilizer or soil amendment agent". Prior to the marketing and utilization of the digestate as a fertilizer or soil amendment Bioenergy Development Company, LLC will be required to obtain a DNREC issued Distribution and Marketing permit under the Waste Regulations. While Bioenergy Development Company, LLC has not yet applied for a permit allowing for the distribution and marketing of their digestate, they have discussed applying for the necessary DNREC issued permit(s) at some point in the future. Additionally, as part of DNREC's permitting process of the digestate, Bioenergy Development Company, LLC would be required to provide proof of a market to satisfy requirements in Bioenergy Development Company, LLC's Resource Recovery permit as well as any additional requirements from the Division of Water.
The citizens of Delaware will be forced to pay to clean up any environmental pollution associated with Bioenergy Development Company, LLC's operations.	In order to protect the citizens of Delaware from failures of solid waste facilities, Delaware's Regulations Governing Solid Waste require that all permitted facilities carry financial assurance. Financial assurance is designed to provide DNREC with funding that can be accessed in event the company fails and DNREC has to clean up the site. The Closure Plan which was created between Bioenergy Development Company, LLC and DNREC outlines the different aspects of the facility which may need to be cleaned up and the costs associated with it. This plan must be updated annually and adjusted so that it keeps up with inflation and other factors that could impact cleanup costs.

In consideration of public comment, some changes were made to the proposed draft permits as documented in the response to comment section above. In addition, the annual tonnage limit of 256,000 tons per year of material throughput as listed in the public noticed draft Resource Recovery Permit was modified to a more restrictive limit of 250,000 tons per year for consistency with air permit applications from the applicant that were under review for the same facility. If the proposed draft permit is issued, the permittee will be required to update their operations plan accordingly. All changes to the proposed draft permits either add compliance monitoring conditions or render the draft permits as more restrictive than those originally advertised based on comments received. The revised draft permits are included in Appendix I through VI and hereby incorporated into the record.

RECOMMENDATIONS

All permit applications associated with the proposed expansion of the Bioenergy Innovation Center were reviewed and determined to be technically and administratively complete in accordance with all relevant state regulations. The proposed draft permits as formulated based on the applications received and in consideration of public comments are written to be protective of human health and the environment, and are consistent with applicable state and federal regulatory requirements. Therefore, the Division of Waste and Hazardous Substances, the Division of Air Quality, and the Division of Water recommend issuance of the draft permits relevant to this proposed facility expansion under their program oversight as detailed in this administrative record. The revised draft permits are included in Appendix I through VI and hereby incorporated into the record.

The following appendices are attached:
Appendix I - Bioenergy_Devco_TRM_RRF_Permit_Draft_0323, is the DRAFT Resource Recovery Facility permit
Appendix II – Draft Permit WPCC 3007-22, is the DRAFT Anaerobic Digester Water Permit
Appendix III – Draft Permit WPCC 3005-22 Pretreatment, is the DRAFT Pre-treatment System Water Permit
Appendix IV – JGM22023 – Bioenergy Development Group, LLC – Permit APC-2022_0048, is the DRAFT Air Permit for the Emergency Generator
Appendix V – JGM22025 – Bioenergy Development Group, LLC Permit APC-2022_0049, is the DRAFT Air Permit for the Associated Flare, RTO, Air Pollution Control & Biogas Upgrade Equipment
Appendix VI – JGM22026 BioEnergy Development Group, LLC – Permits APC-2022_0048 & 0049 Memorandum, is Air's memo regarding the DRAFTs of both Air Permits

cc: Amy Mann
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