Align RNG, LLC – BF Grady Road

Hearing Officer's Report and Recommendations

Virtual Public Hearing
November 16, 2020

Public Comment Period:
May 16, 2020 through November 20, 2020

Pertaining to Permit Application No. 3100179.19A and
Draft Air Quality Permit No. 10644/R00 for:

Align RNG, LLC – BF Grady Road
2940 NC Highway 24 W | Turkey, North Carolina 28393
Duplin County
Facility ID No. 3100179
Classification: Synthetic Minor

Hearing Officer
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Regional Supervisor, Winston Salem Regional Office

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I. Background

On December 10, 2019, the North Carolina Department of Environmental Quality (DEQ), Division of Air Quality (DAQ), received an initial Air Quality Permit application (App. No. 3100179.19A) from Align RNG, LLC. The purpose of the application was for a new Air Quality Permit (draft Permit No. 10644/R00) to construct and operate a new biogas processing and conditioning system. The facility would be located at 2940 NC Highway 24 West in Turkey, Duplin County, North Carolina, which is in the DAQ Wilmington Region (WIRO).

II. Air Quality Permit Application and Permit Review

The DAQ's mission is to work with the state's citizens to protect and improve outdoor, or ambient, air quality in North Carolina for the health, benefit, and economic well-being of all. To accomplish this mission, the DAQ requires industrial facilities to apply for and receive Air Quality Permits prior to construction and operation of the air pollution sources and air pollution control equipment to ensure compliance with all applicable federal and state regulations.

This application is for a new facility (Align RNG – BF Grady Road) which plans to receive biogas produced in anaerobic digesters at swine animal operations located in Duplin and Sampson counties. The projected biogas production amount has been calculated from other similar anaerobic digesters in NC using swine manure as the sole feedstock. The biogas will be dried using biogas dehydration and compression systems (and a glycol chiller system) at each swine animal operation (roughly 19 total) and transported through low-pressure (< 10 psig) biogas collector lines to the Align RNG – BF Grady Road facility. The new facility will operate under 3 operating scenarios which can be identified as follows:

- Normal Operating Scenario: The biogas will be conditioned to renewable natural gas quality using the Gas Upgrading System (Emission Source ID No. ES-GUS) and injected into the Piedmont Natural Gas pipeline for offsite consumption. The majority of the non-methane constituents of the biogas, referred to as tail gas, will be scrubbed for hydrogen sulfide (H_2S) using an iron sponge system (two iron sponge scrubbers, Control Device ID Nos. CD-1 and CD-2 in parallel), followed by one enclosed hybrid flare (Control Device ID No. CD-3) for the combustion of tail gas that has been treated by CD-1 and/or CD-2. That portion of the tail gas that is not scrubbed by the iron sponge system will be sent directly to the enclosed hybrid flare.

- Off-Specification Gas Scenario: The biogas will have been conditioned, having been processed by Gas Upgrading System and scrubbed for H_2S by the iron sponge system, but the biogas will not have reached the specifications needed for its injection into the Piedmont Natural Gas pipeline. In this scenario, the tail gas will continue to be combusted by the enclosed hybrid flare, but the off-specification

biogas will be combusted by one elevated candlestick flare (Control Device ID No. CD-4)

- Bypass Scenario: During periods of equipment repair or maintenance when the Gas Upgrading System is not operating, the unconditioned biogas will be combusted by the elevated candlestick flare.

In all three scenarios, the facility will be required to operate in a manner that ensures compliance with state and federal air quality regulations. According to the permit application, the nearest swine animal operation at which biogas will be produced and transported to the proposed Align RNG facility are approximately 1.1 miles in direct linear distance from the proposed facility.

III. Notice of Public Hearing

At the discretion of the Director of the DAQ, a notice of the draft Air Quality Permit was posted in the Sampson Independent newspaper on May 16, 2020 and began a 30-day comment period. Likewise, a notice of the draft Air Quality Permit was posted on the DAQ public engagement webpage as well. As additional outreach, the notice was published in the Duplin Times newspaper on May 21, 2020 and the comment period was publicized on the DEQ social media accounts multiple times starting on May 21, 2020. Copies of the permit application, Air Quality Permit review and draft Air Quality Permit were posted on the DAQ website, as well as at the DAQ's WIRO and for public review throughout the comment period. On May 29, 2020, the DEQ issued a press release as a reminder to the public. The initial public comment period ended on June 16, 2020 and 558 email comments, 10 postcards, and 5 letters had been received. On June 4, 2020, the DEQ sent outreach letters to sensitive receptors as suggested by the DEQ's draft Environmental Justice Report.

On September 16, 2020, the DAQ announced that a virtual, online Public Hearing would be held on October 20, 2020, along with a new comment period, via press release. Due to the COVID-19 pandemic and the associated safety and social distancing concerns, the DAQ determined that it would be appropriate to hold the Public Hearing in a virtual, online format rather than an in-person public hearing in a public meeting place, which would have amounted to a mass gathering and potential "super-spreader" event. The new public comment period and hearing date were posted in the Sampson Independent and on the DAQ public engagement webpage on September 16, 2020 and the Duplin Times on September 24, 2020. The new public comment period began on September 17, 2020 and was scheduled through October 22, 2020. Copies of the permit application, Air Quality Permit review and draft Air Quality Permit continued to be posted on the DAQ website, as well as at the DAQ's WIRO and for public review throughout the comment period.

On September 29, 2020, in response to community concerns regarding a conflict with another DEQ hearing on October 20th, the virtual, online Public Hearing was rescheduled, and the comment period was extended. The Public Hearing, as well as a Public Meeting immediately before the Hearing were to be held on November 16, 2020. The comment period was extended through

November 20, 2020 at 5pm. Likewise, on September 29, 2020, a virtual online meeting with the Rural Empowerment Association for Community Help (REACH) was held to discuss outreach plans for the nearby community. The information on the rescheduled virtual, online Public Meeting and Hearing was posted on the DAQ public engagement webpage, in The Sampson Independent on September 30, 2020 and in The Duplin Times on October 8, 2020. In-person and socially distanced outreach was done in the Beauville, Faison, Turkey, Clinton, Wallace, and Warsaw areas on October 20, 2020. On October 27, 2020, the DEQ expanded outreach by sending outreach letters to addresses within a one-mile radius of the proposed facility and surrounding community. Flyers were handed out in English and Spanish that detailed the Align RNG project and the Public Meeting and Hearing date and public comment period. These locations included small businesses, churches, and local community centers. The DEQ staff met with REACH staff in person and in a socially distanced manner.

The virtual, online Public Meeting and Hearing was held on November 16, 2020 through WebEx online platform. The final public comment period ended at 5 PM on Friday, November 20, 2020.

IV. Overview of Public Comments Received

Over the duration of public comment period, over 900 written comments were received. Likewise, more than 100 citizens signed up to speak and 66 citizens gave verbal comments during the November 16, 2020 virtual public hearing, while 3 verbal comments were left in the voicemail box dedicated for public comments. There was a significant number of written commenters who approved of the issuance of the proposed Air Quality Permit and, likewise, a similar significant number of commenters who opposed the issuance of the permit.

All comments received during the public comment period, both oral and written, have been evaluated and copies of all written comments and any attachments to those written comments can be made available by the DAQ upon request. All comments were given equal consideration, whether they were written, left verbal in the voice mail box designated for comment, or made verbally at the November 16, 2020 virtual public hearing. Many of the comments received, both oral and written, expressed similar approval or concerns, often using almost identical language as if they were "form letters." Due to the relatively large number of public comments, rather than addressing each comment on an individual basis, the comments were first separated based on whether they seemed to approve or oppose the issuance of the draft Air Quality Permit. Once separated into these two very broad categories, the comments were further separated based on the expression of various similar points of approval or opposition to permit issuance. It is these various similar points that will addressed by the Hearing Officer.

Finally, several commenters, including elected public officials, trade group representatives, consultants, and representatives of environmental advocacy and policy organizations, provided significant written technical, regulatory, and/or public policy comments. Rather than addressing those written comments on a commenter-by-commenter basis, the Hearing Officer will group similar comments together to address them.

A. Comments from Speakers at the November 16, 2020 Virtual Public Hearing

On November 16, 2020, the DAQ held a virtual Public Meeting, which began at 6:00 PM, and a virtual Public Hearing, which began at approximately 6:40 PM. The Public Meeting and Public Hearing were held through the WebEx online platform. Additionally, a dedicated telephone number was provided to enable citizens to call in to the hearing and make comments if they had either no internet access or a poor internet connection. The Public Meeting was hosted by Mr. Michael Pjetraj, Deputy Director of the DAQ. Mr. Dean Carroll, Permitting Coordinator of the DAQ Wilmington Regional Office (DAQ/WIRO), gave a presentation of the draft Air Quality Permit for the proposed Align RNG facility. Citizens asked questions of Mr. Carroll and Mr. Pjetraj, as the Public Meeting was not a formal part of the Public Hearing.

The Hearing Officer for the Public Hearing was Mr. Ray Stewart, Regional Air Quality Supervisor for the DAQ's Winston Salem Regional Office (WSRO). Unlike the Public Meeting, citizens were allowed to make comments during the Public Hearing, but were not permitted to ask questions of either the Hearing Officer, Mr. Pjetraj, or Mr. Carroll. During the Public Hearing, citizens were allowed up to 2 minutes to speak, as approximately 105 people signed up to speak. Of the citizens who were signed up to speak, 66 of them did speak, while another 39 citizens were called to speak and either declined to speak or were not present to speak.

Several elected public officials (or their representative) spoke at the Public Hearing, all of whom indicated their approval of the proposed Align RNG facility and issuance of the Air Quality Permit. These officials included:

- Mr. John Lanier, on behalf of NC Agriculture Commissioner Steve Troxler.
- NC Representative Shelly Willingham
- NC Representative Jimmy Dixon
- NC Representative Ray Smith
- NC Senator Paul Lowe
- NC Senator Norman Sanderson
- NC Senator Brent Jackson

Of the Public Hearing commenters who were not elected public officials or their representatives, many of them spoke in opposition to the proposed Align RNG facility and draft Air Quality Permit, with a smaller number of them speaking in support of the facility and draft permit. The Public Hearing comments were not as detailed as some of the written comments received, due to the limited time allotted to each speaker. However, the general points and claims that were made were very similar to those received in the written public comments.

Examples of the statements and claims made by speakers in favor of permit issuance include the following:

- Construction and operation of the Align RNG facility will inject money into the local economy.

- The facility will be good for the agricultural economy of Sampson and Duplin Counties.
- The use of the biogas generated from the 19 animal operations will displace some the traditional fossil fuels used for power generation and heating.
- Operation of the proposed Align RNG facility would be consistent with the expressed goals of NC Governor Roy Cooper's Executive Order 80 and the NC Clean Energy Plan.

Examples of the statements and claims made by speakers in opposition to permit issuance include the following:

- The community outreach to local residents on the part of the DAQ was poor.
- There is a lack of transparency about the scope and scale of the overall Align RNG facility project.
- The Align RNG project and its environmental impacts will disproportionally affect poor communities and people of color, raising issues of environmental justice and concerns that the requirements of Title VI of the Civil Rights Act are not being met.
- The swine waste lagoons utilized by the 19 swine animal operations from which the biogas will originate are outdated from a technological perspective.
- Concerns were expressed about the location of the pipelines that would carry the biogas from the 19 swine animal operations and the potential for leaks of biogas from those pipelines.
- Air pollutant emissions from the proposed Align RNG facility are significantly underestimated.
- Concerns were expressed about the potential human health impacts caused by the additional methane (CH_4), hydrogen sulfide (H_2S), sulfur dioxide (SO_2), and particulate (PM) emissions created by the operation of the proposed Align RNG facility.

A recording of the Public Meeting and Public Hearing, as well as a listing of the persons who spoke at the hearing, can be made available by the DAQ upon request.

Hearing Officer's Response:

As the comments made and issues raised by the citizens who spoke at the Public Hearing were similar in nature to the written comments made during the overall Public Comment period, the Public Hearing comments will be addressed in the course of addressing the written comments. All public comments, both written and at the Public Hearing, were considered carefully by the Hearing Officer. However, the decision of whether the draft Air Quality Permit should be issued to the Align RNG facility must be based on the facility's compliance with applicable state and federal air quality regulations.

B. General Written Comments in Approval of Permit Issuance:

Most of the written public comments received during the June 2020 public comment period were in favor of issuance of the draft Air Quality Permit. In the written public comments received during the October/November 2020 public comment period, most of the written comments were opposed to issuance of the draft Air Quality Permit, although there were a few comments in favor of permit issuance. In both public comment periods, many of the written comments in favor of permit issuance contained very similar, if not identical language. The following are some examples of the text of the general comments in favor of permit issuance:

- *"I am writing to express my support for the draft air quality permit for Align RNG and encourage you to approve the permit as drafted. As a resident of eastern North Carolina, I support this project for several reasons:*

    - *It captures and removes greenhouses gases and other emissions from the environment. It will ultimately have the same benefit to our environment as planting 40 million new trees.*

    - *It provides a new source of renewable energy that can be used to power homes and businesses.*

    - *It invests $375 million in our community - creating new jobs in our community, generating new revenue for family farms, and making North Carolina a national leader in renewable natural gas.*

  This project provides an innovative approach to converting manure into renewable energy on pig farms in Duplin and Sampson counties, without the need to expand those farms. That's a step forward for the industry that we should encourage and support. I strongly support this project and encourage you to approve the draft air quality permit for Align RNG as currently drafted."

- *"I am writing to express my support for the draft air quality permit for Align RNG and encourage you to approve the permit as drafted. I am a proud North Carolina pig farmer. We are committed to continuously improving all aspects of our operations, including manure management. The Align RNG project represents an opportunity to convert manure into clean renewable energy on 19 pig farms in Duplin and Sampson counties. This is a project with tremendous benefits for farmers and our communities. It will capture and remove greenhouses gases and other emissions, while providing a new source of clean energy that can be used to power homes and businesses. It also provides an innovative approach to transforming manure into renewable energy. The success of projects like this will lead to more opportunities for family farmers like me. Renewable energy projects can provide an additional source of income for family farms, providing economic diversity and making our farms more sustainable. I strongly support this project*

and encourage you to approve the draft air quality permit for Align RNG as currently drafted."

- *"The proposal to convert methane gas from hog farms to renewable energy seems like a "win-win"! Energy AND reduced risk of overflow! I really do hope you will take another look and consider the win-win for our waters, air AND support of our family farmers."*

Hearing Officer's Response:

The DAQ appreciates the long, proud history and significant contributions of agriculture, including animal operations, to economic and cultural development in the State of North Carolina. However, as referenced earlier in this Hearing Officer's Report, the decision of whether the draft Air Quality Permit should be issued to the Align RNG facility must be based on the facility's compliance with applicable state and federal air quality regulations.

C. General Comments from Trade Groups and Public Officials in Approval of Permit Issuance:

Written public comments were received from both elected public officials and from trade and regional economic groups with an interest in the issuance of the draft Air Quality Permit for the Align RNG facility. These officials and groups include:

- NC Representative William Brisson
- NC Farm Bureau Federation
- NC Pork Council
- NC Grange
- American Public Gas Association
- NC Chamber
- Cavanaugh and Associates, P.A.
- The Southeastern Partnership
- Smithfield Foods
- The Coalition for Renewable Natural Gas

The breadth of the subject matter in these comments can be generalized to include the following points and claims in support of permit issuance:

- The facility will provide clean, renewable energy through the conversion of swine manure.
- The facility would help make swine animal operations in NC to be more economically sustainable.
- The proposed facility would reduce the odors from swine manure.
- The proposed facility would reduce greenhouse gas (GHG) emissions from swine manure lagoons that contribute to anthropogenic climate change.
- The project would invest significant financial resources into local economies.

- The project is consistent with the goals of Governor Roy Cooper's Executive Order 80 and the Clean Energy Plan.

Hearing Officer's Response:

The DAQ recognizes the importance of economic development, the reduction of GHG emissions, and the goals of Executive Order 80 and the NC Clean Energy Plan. However, it is outside of the scope of this Public Hearing and the duties of the Hearing Officer to either affirm or reject the comments and claims referenced above. As stated earlier in this Hearing Officer's Report, the decision of whether the Air Quality Permit should be issued to the Align RNG facility must be based on the facility's compliance with applicable state and federal air quality regulations.

D. General Written Comments in Opposition to Permit Issuance:

In contrast to the written comments received during the June 2020 public comment period, most of which were in favor of issuance of the draft Air Quality Permit, most of the written public comments received during the October/November 2020 public comment period (321 of over 340) were opposed to permit issuance. As with the June 2020 public comment period, many of the written comments opposed to permit issuance contained very similar, if not identical language. The following are some examples of the text of the general comments opposed to permit issuance:

- *"I am writing to oppose the Align Energy, LLC permit request to build a biogas pipeline in Duplin and Sampson counties. North Carolina should be working toward clean energy solutions and not further burdening rural, low-income areas and communities of color with the air and water pollution that accompanies projects like this one. Nor should DAQ help to perpetuate the outdated lagoon-and-spray field system of hog waste disposal that is responsible for so much air and water pollution in the coastal plain. Approval of the permit would mean new sulfur dioxide, carbon, nitrogen oxide and more harmful emissions that would negatively impact local air quality and contribute to climate change. Further, pipelines transporting biogas can leak harmful greenhouse gas emissions into the air. DAQ should consider pollution from every component of the proposed project, including the 19 industrial hog operations and the processing facility. DAQ should require technology to protect the community and air at all hog operations that are to be connected with the project, if it goes forward. I ask DAQ to deny this permit because the project would negatively impact air quality and because the permit application is incomplete in that it does not address emissions from the hog operations that would feed the project."*

- *"The industry has done nothing for 20 years to protect air and water quality from the lagoon and spray field system and covering the lagoons will mean that ammonia is further concentrated in the spray on the fields and more pollutants may be forced downward into the ground water."*

- *"These proposed plants would not fix the problems of hog waste stored in lagoons. Neighbors do not want additional pipelines. Communities of color continue to be disproportionately affected by the pollution from industrial hog operations in our state."*

- *"I am writing to demand that DEQ refuse to grant an air quality permit for this project. DEQ should not grant the permit because the Align Energy project relies on an outdated, inadequate, and banned system to store and spray animal waste. Not only is this system technologically insufficient and outdated, the modification to this existing system that is required by the project will make waste odors worse. Impacted communities already bear the burden of this smelly waste as well as air pollutants from other polluting facilities. They should not be forced to endure a more concentrated putrid odor of animal waste that would result from permitting this project."*

- *"I am writing as a concerned U.S. Citizen and close friend to a family that lives in Fayetteville. The Grady Road Project, if approved, will damage streams and rivers in eastern North Carolina, pollute the air, and have a devastating impact on the health of families living in Duplin and Sampson counties and beyond. North Carolinians who live near large swine operations already have higher disease and death rates compared to those who live farther away. People of color also bear a disproportionate brunt of these higher death and disease rates. The Grady Road Project relies on an outdated and unsafe method of storing untreated hog feces and urine in waste pits and spraying the untreated waste on nearby land."*

Hearing Officer's Response:

The DAQ is sensitive to issues involving environmental justice, clean energy, anthropogenic climate change, and the protection of the surface and groundwaters of the State of North Carolina. However, as referenced earlier in this Hearing Officer's Report, the decision of whether the Air Quality Permit should be issued to the Align RNG facility must be based on the facility's compliance with applicable state and federal air quality regulations.

E. Comments from Environmental Advocacy and Public Policy Groups in Opposition to Permit Issuance:

Written public comments of a more general nature were received from environmental advocacy and public policy organizations who opposed in the issuance of the draft Air Quality Permit for the Align RNG facility. These organizations include:

- The Southern Environmental Law Center (SELC)
- The North Carolina Conservation Network (NCCN)
- The Environmental Justice Community Action Network (EJCAN)
- Clean Water for North Carolina (CWNC)

- Clean Air Carolina (CAC)
- Crystal Coast Waterkeeper (CCWK)
- Food & Water Watch (FWW)
- Animal Legal Defense Fund (ALDF)
- The North Carolina Environmental Justice Network (NCEJN)

The breadth of the subject matter in these comments can be generalized to include the following points and claims in opposition to permit issuance:

- The Align RNG facility will have discriminatory impacts on low-income communities and communities with constituencies that are composed primarily of people of color (including Black, Hispanic, and Indigenous.).

- The DAQ has failed to effectively engage nearby impacted communities in the Air Quality Permit approval process.

- The DEQ has failed to consider its obligations under Title VI of the Civil Rights Act.

- The swine animal operations that will provide the biogas to the Align RNG facility are representative of harmful, industrial scale farming operations.

- There is a lack of information that is needed to evaluate the cumulative health effects of living in proximity to large scale swine animal operations.

- The swine animal operations from which the biogas will be processed by the Align RNG facility utilize outdated systems of animal waste management.

- Instead of holding a virtual, online Public Hearing, the DAQ should have waited until the end of the COVID-19 pandemic to hold an in-person Public Hearing at a physical public venue to accommodate those citizens who might wish to make verbal comments but lack the telephone and/or broadband internet access necessary to make the same verbal comments at a virtual, online Public Hearing.

- The draft Air Quality Permit does not support the GHG emission reduction goals of Governor Roy Cooper's Executive Order 80.

- The analysis conducted by the DAQ as a part of drafting the Air Quality Permit failed to account for the direct and cumulative impacts from the 19 swine animal operations providing the biogas to the Align RNG facility or the pipelines that will transport the biogas.

Hearing Officer's Response:

Environmental Justice and Community Outreach

As is referenced above in the Notice of Public Hearing section of this Report, the November 16, 2020 Public Meeting and Hearing was accessible both by dial-in phone number and by internet access through the WebEx platform using a computer or other connected devices. All comments received, no matter the method by which they are received by the DAQ (postal mail, voicemail, email, or shared orally during the public hearing) were weighed equally by the Hearing Officer.

After preparing the Environmental Justice (EJ) Report (Appendix B of the Hearing Officer's Report) for the proposed Align RNG facility, the DEQ performed the following enhanced engagement actions to ensure meaningful involvement of the community regarding the permit application review process for the facility:

- The Public Comment period was extended.
- A Public Meeting and Hearing for this draft permit was held on November 16, 2020, even though it was not required under NC General Statutes or state air quality regulations.
- Communication was held between the DEQ and various local community organizations, including REACH and NC Conservation Network, to solicit best outreach options and discuss ideas with community leaders.
- The DEQ held several meetings with Align representatives to discuss and recommend outreach options for them to conduct in addition to the DEQ's own outreach efforts.
- The DEQ created a straightforward one-page flyer that outlined details and location about the proposed facility, as well as information on how to provide comments.
- The DEQ created a dedicated voicemail line which commenters could call and leave a message / comment by phone.
- The DEQ translated the one-page flyer and the answering voicemail into Spanish language because the DEQ identified a greater than 5% Limited English Proficiency population in the EJ review.
- The DEQ conducted physically distanced, in-person visits to local businesses (placing a special focus on minority-owned businesses, and those businesses serving lower-income clients, such as laundromats), churches, and town centers

(socially distanced and following all CDC and state DHHS guidelines) to distribute the one-page flyers (in both English and Spanish), and to discuss the project with interested members of the community.

- The DEQ met in-person with a local community organization and solicited other outreach ideas and locations for where to distribute the one-page flyers.

- The DEQ engaged in government-to-government communications with the Coharie Tribe about the project and public hearing.

- The DEQ sent outreach letters to addresses within a one-mile radius of the proposed facility

- The DEQ offered a call-in option to participate in the public hearing to accommodate potential lack of internet access in the community.

- The DEQ offered a Spanish call-in option during the public hearing.

In short, it is the view of the Hearing Officer that when it comes to the potential issuance of the draft Air Quality Permit to Align RNG, the DEQ and the DAQ engaged in meaningful consideration of Environmental Justice issues and invested in public engagement and participation to ensure that all affected communities had an opportunity to have meaningful involvement in the permitting process during this public health pandemic.

Greenhouse Gas Emissions

Per the NC Greenhouse Gas (GHG) inventory, emissions from swine animal operations represent about 77 percent of all manure management related emissions, and about 45 percent of total emissions from the entire agriculture sector. Producing biogas from swine waste generally results in a net reduction of GHGs compared to venting the lagoon emissions to the atmosphere. Collecting this methane, which would have been emitted into the atmosphere, and combusting it for energy converts it into the less harmful greenhouse gas CO_2. The use of this biogas as a fuel source also reduces the amount of geologic natural gas that would have been produced, transported, and combusted to meet North Carolina's thermal energy demand in the residential, commercial, and industrial sectors. It is estimated that fugitive leaks from high pressure natural gas transmission systems represent 5 to 7 percent of the transported gas. The fugitive leaks are expected to be at a reduced rate due to the nature of the low-pressure pipeline system and absence of high-pressure components. Nonetheless, venting of biogas to the environment through routine operation and transportation activities will pose the similar climate risk as the venting of natural gas. Leak detection and repair programs, minimizing venting of collected gas, and other operational efficiency improvements are a way to restrict loses from the system.

An analysis is being conducted by RTI International in conjunction with Duke University and East Carolina University to study biogas development in North Carolina. A preliminary report on the analysis to date was submitted to the Energy Policy Council on August 8, 2020. The final report is expected to be released in late 2020 or early 2021 and will contain the effects of biogas use on the climate, environment, and other societal impacts. The report is also expected to address the impact of swine waste-to-energy biogas on the state's air and water quality and provide a clean energy ranking for biogas as compared to other energy sources.

On December 8 and 16, 2020, the DAQ sent letters to Align RNG requesting additional information on the proposed facility. Align RNG sent response letters to the DAQ on December 11, 2020 and January 4, 2020, respectively. Both the letters to and from Align RNG are included in the Appendix to this Hearing Officer's Report.

The Hearing Officer is not aware of any applicable statutes and regulations that would prevent the issuance of the draft Air Quality Permit to Align RNG on the basis of GHG-related issues as stated in the comment letters.

F. Technical and Regulatory Comments:

The following written comments received during the comment period for this Public Hearing contain multiple points and claims of a technical and regulatory nature that the Hearing Officer deems germane to the determination of whether the draft Air Quality Permit should be issued to the Align RNG facility based on the facility's compliance with applicable state and federal air quality regulations. Summary of these comments and claims, both in favor of and in opposition to permit issuance, are as follows:

Comments in Opposition to Permit Issuance

- The 19 swine animal operations that will serve as the sources of the biogas, as well as the pipelines utilized to deliver the biogas, should be considered a "single stationary source" along with the proposed Align RNG facility. If such a determination is made, it would impact the calculation of potential-to-emit (PTE) for the facility as a whole and may have an impact on whether the facility would need a Title V Air Quality Permit and possibly even an Air Quality Permit containing requirements to ensure compliance with the federal New Source Review Program.

- The proposed Align RNG facility may be subject to the requirements of 40 CFR 60, Subpart OOOOa, "Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015."

- Align RNG has underestimated the volume and constituents of the biogas that will be processed by the proposed facility, possibly necessitating higher demands of the

facility's enclosed hybrid flare (Control Device ID No. CD-3) and candlestick flare (Control Device ID No CD-4).

- The following operating parameters should be included in the proposed Air Quality Permit as "enforceable conditions":

    - A maximum instantaneous flow rate of biogas into the Gas Upgrading System (Emission Source ID No. ES-GUS) of 1,200 scfm.

    - A maximum instantaneous hydrogen sulfide (H_2S) concentration of 3,500 ppm in the biogas into the Gas Upgrading System.

    - A maximum of 360 hours and 240 hours of operation in Operating Scenarios 2 and 3, respectively, as referenced in the proposed Air Quality Permit.

- The inspection and maintenance (I/M) requirements that the proposed Air Quality Permit places on the facility's emission control and monitoring equipment rely too much on "manufacturer's recommendations" and Align RNG's own judgement. The "manufacturer's recommendations" should be spelled out explicitly in the proposed Air Quality Permit and should be available for public review.

- Concerns were expressed on the public health impact on nearby residents of the emissions of nitrogen oxides (NO_x), carbon dioxide (CO_2), and $PM_{2.5}$ from any flaring that occurs at the proposed facility.

- Anticipated sulfur dioxide (SO_2) emissions from the proposed facility should be modeled for compliance with the National Ambient Air Quality Standards (NAAQS).

- The frequency of monitoring of the flow rate the biogas and tail gas and their hydrogen sulfide (H_2S) concentrations in should be increased.

- The conversion rate of the candlestick flare (Control Device ID No. CD-4) should be assumed as no more than 60%.

<u>Comments in Favor of Permit Issuance</u>

- 15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources" should not be applicable to the Gas Upgrading System (Emission Source ID No. ES-GUS), the enclosed hybrid flare (Control Device ID No. CD-3), and the candlestick flare (Control Device ID No. CD-4).

- Specific Condition A.3.b of the current draft Air Quality Permit states "if the emission rate of sulfur dioxide (lb./MM Btu) from CD-3 exceeds the limit defined in 15A NCAC 02D .0516, the Permittee shall be in violation of the permit." The commenter stated that this statement in the sentence is incorrect, as under 15A NCAC 2D .0535 "Excess Emissions Reporting and Malfunctions," an exceedance of the emission standard that occurred under startup, shutdown, and malfunction conditions would be permissible. The commenter requested that the statement be removed from the Specific Condition.

- Specific Condition A.6.e.ii of the current draft Air Quality Permit states "Calculation of the consecutive 12-month periods shall begin upon start-up of the facility (biogas flowing to the Align RNG facility)." The commenter requested that "startup" should be changed to "startup post-commissioning and startup testing."

- Specific Condition A.7.c.ii of the current draft Air Quality Permit states "Calculation of the consecutive 12-month periods shall begin upon start-up of the facility (biogas flowing to the Align RNG facility)." The commenter requested that "startup" should be changed to "startup post-commissioning and startup testing."

- The request was made for less frequent monitoring and recordkeeping under Special Conditions A.3 and A.6.

- The commenter stated that in both Specific Condition A.3.b and A.6.d.iii, the H_2S concentrations used in the SO_2 emission rate equations must be divided by 10^6 to be mathematically correct.

- In Specific Condition A.6.d.iii, of the current draft Air Quality Permit, the DAQ has included a constant of 0.05 lb./hr. to represent SO_2 emissions from trace sulfur compounds in the equations to be used for calculating the SO_2 emission rate in the various operating scenarios. The commenter requested that this constant be replaced with a variable to better reflect actual measured data that may be obtained through additional sampling and suggested the following language:

  > "TS= SO_2 emissions resulting from the combustion of trace sulfur compounds other than hydrogen sulfide (lb./hr.). A value of 0.05 shall be used unless and until the Permittee demonstrates, through sampling, that an alternate value is more representative."

- In multiple parts of Specific Condition A.6, the draft Air Quality Permit requires that total daily SO_2 emissions be calculated to "3 significant figures." The commenter expressed concerns that level of precision likely exceeds that of the monitoring equipment and recommended that this statement be revised to require values be calculated to the nearest hundredth to demonstrate that the proposed

facility has remained under the annual 100 tons per year (tpy) SO_2 limit to avoid Title V Air Quality Permitting.

- The request was made that the equation for calculating the daily facility-wide emission rate (lb./day) of H_2S be included in Specific Condition A.8.f of the draft Air Quality Permit.

Hearing Officer's Response:

In Response to Comments in Opposition to Permit Issuance

The "Single Stationary Source" Issue

Under the federal rules governing Air Quality Permitting programs, facilities may be considered part of the same stationary source or considered a single major stationary source for the purposes of the Prevention of Significant Deterioration (PSD) and/or Title V permitting programs only if all 3 of the following hold true about the separate facilities:

- The facilities belong to the same industrial grouping (SIC code).
- The facilities are located on one or more contiguous or adjacent properties.
- The facilities are under the control of the same person (or persons under common control).

First, the Hearing Officer finds that the farms and the proposed facility do not belong to the same industrial grouping. The proper SIC Code for swine animal operations is 0213 for "Agricultural Production – Livestock – Hogs." The permit application for the draft Align RNG Air Quality Permit indicates the proper SIC for the facility would 4925 for "Mixed, Manufactured, or Liquified Petroleum Gas Production and/or Distribution." While the Hearing Officer is not certain that the 4925 SIC code is appropriate for the proposed Align RNG facility, it is clear to the Hearing Officer that swine animal operations and biogas conditioning operations would not share the same SIC code, based on the hierarchy used in the SIC system. Some commenters have requested the DAQ adopt the interpretation that facilities may be considered part of the same industrial grouping if one facility is a "support facility" for the other. The Hearing Officer has not identified an instance in which the DAQ has implemented this interpretation to determine that sources that do not have the same SIC code are nonetheless part of the same industrial grouping. Furthermore, the factors that the EPA has pointed to for determining that a facility is a "support facility" do not favor a support facility determination here. The EPA points, for instance, to whether more than 50% of the output or services provided by one facility is dedicated to another facility that it supports. While the swine animal operations in question will certainly provide the proposed facility with a source of gas, the primary function of these operations is to produce swine for human consumption. The production of biogas is a byproduct of a waste management system that has been in place at these operations since long before the proposed facility filed its permit application. The fact that

the proposed facility will be purchasing biogas from these farms does not warrant a finding that the facilities are part of the same industrial grouping.

Second, the Hearing Officer finds that the swine animal operations and the proposed facility are not located on "contiguous" or "adjacent" properties. As an initial matter, there is no question that the operations and the proposed facility are not "contiguous" because they are not in contact with each other (i.e., they do not share a property boundary.)

With respect to adjacency, 40 CFR 51.166 "Prevention of Significant Deterioration of Air Quality" states in plain language:

> *"Pollutant emitting activities shall be considered adjacent if they are located on the same surface site; or if they are located on surface sites that are located within 1/4 mile of one another (measured from the center of the equipment on the surface site) and they share equipment."*

According to the permit application the closest swine animal operation digester system will be located approximately 1.1 miles away from the proposed facility, while the other operations are even farther away. While 40 CFR 51.166 itself does not preclude a determination that pollutant emitting activities located more than ¼ of a mile apart can be considered adjacent, the Hearing Officer finds that the large distances between the farms and the proposed facility here demonstrate that these properties are not "adjacent."

The Hearing Officer acknowledges that EPA has at times endorsed an interpretation of the term "adjacent" that includes the concept of "functional interrelatedness." EPA no longer endorses this view. Recently, EPA promulgated a specific rule governing the oil and gas industry providing that facilities located more than ¼ of a mile from one another are not adjacent.[1] In addition, EPA recently issued a memo[2] providing its interpretation of the term "adjacent" as used in the context of PSD and Title V with respect to industries outside of the oil and gas sector. In that memo, EPA stated that rather than apply the "functional interrelatedness" test, "the better approach is to apply the Agency's original interpretation expressed in the 1980 development of the [PSD program] where [the Agency] focused exclusively on proximity when considering whether properties are adjacent." At least one federal appellate court has held that an interpretation of the term "adjacent" that includes the concept of "functional interrelatedness" is contrary to the plain meaning of the term and unreasonable.[3]

The Hearing Officer has not identified an instance in which DAQ has used the concept of "functional interrelatedness" to determine that facilities that are not in close physical proximity are

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[1] 81 Fed. Reg. 35,622, 35,624-25 (June 3, 2016)

[2] 11/26/19 "Interpreting "Adjacent" for New Source Review and Title V Source Determinations in All Industries Other Than Oil and Gas" https://www.epa.gov/sites/production/files/2019-12/documents/adjacent_guidance.pdf

[3] *Summit Petroleum Corp. v. United States EPA*, 690 F.3d 733, 744 (6th Cir. 2012) (holding that the plain meaning of "adjacent" requires aggregated facilities to have "physical proximity").

nonetheless "adjacent." While DAQ is not bound by EPA's current interpretation of the term adjacent or the rulings of courts in other federal circuits, the Hearing Officer finds that interpreting the term adjacent to require "physical proximity" is consistent with DAQ's past practices; it also comports with a natural reading of the term.

Here, because the farms are not in close physical proximity to, and are therefore not adjacent to, the proposed facility, the Hearing Officer finds that the farms and proposed facility do not meet this requirement for a single stationary source.

Third, the Hearing Officer has seen some evidence to date that the Align RNG facility would be controlled or owned by the same person(s) or corporate entity that owns or controls some of the 19 animal operations in question or the pipeline delivering the biogas from the farms to the proposed facility. The Hearing Officer is aware that four participating farms are owned or controlled by Smithfield Foods, a member of the Align RNG, LLC joint venture. However, the Hearing Officer need not address this issue further as the adjacency and common industrial grouping tests have not been met. In order to be considered a single source, the facilities must meet all three requirements.

Finally, courts and EPA have long recognized that for PSD purposes, a "source" must approximate the "common sense notion of a plant."[4] At a fundamental level, the pre-existing swine animal operations and the newly proposed facility, separated by at least 1.1 miles, do not meet the commonsense notion of a plant.

On December 8 and 16, 2020, the DAQ sent letters to Align RNG requesting additional information on the proposed facility. Align RNG sent response letters to the DAQ on December 11, 2020 and January 4, 2020, respectively. Both the letters to and from Align RNG are included in the Appendix to this Hearing Officer's Report.

The Hearing Officer concludes that the 19 swine animal operations and associated pipelines cannot be considered a single stationary source with the proposed facility for the purposes of the PSD and/or Title V permitting programs.

Applicability of 40 CFR 60, Subpart OOOOa

Based on the DAQ's technical and regulatory analysis regarding the proposed Align RNG facility and the associated Air Quality Permit application, the facility is not subject to the requirements of 40 CFR 60, Subpart OOOOa, "Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015." A close examination of this Subpart indicates that under 40 CFR 60.5365a, the facility must be within the Crude Oil and Natural Gas Production source category, as defined in 40 CFR 60.5430a, to be subject to the Subpart. 40 CFR 60.5430a defines the Crude Oil and Natural Gas Production source category as meaning:

[4] 45 Fed. Reg. 52676, 52695 (Aug. 7, 1980) (citing *Alabama Power Co. v. Costle*, 636 F.2d 323, 397 (D.C. Cir. 1979).

1. Crude oil production, which includes the well and extends to the point of custody transfer to the crude oil transmission pipeline or any other forms of transportation; and

2. Natural gas production and processing, which includes the well and extends to, but does not include, the point of custody transfer to the natural gas transmission and storage segment.

Nowhere in the Subpart are the terms "biogas" or "renewable natural gas" either defined or used. There are no natural gas or crude oil wells at the facility, nor are there any wells at the 19 swine animal operations that would supply the biogas to the proposed Align RNG facility.

Maximum Operating Parameters within Enforceable Conditions

The Air Quality Permit application submitted by Align RNG listed the maximum rated capacity for the Gas Upgrading System (Emission Source ID No. ES-GUS) as being 1,200 scfm. However, the Hearing Officer notes that this capacity is not currently in the draft Air Quality Permit and it will be his recommendation that this rated capacity be added to the description of this emission source in the equipment list and a Specific Condition should be added to the draft Air Quality Permit which states that the maximum biogas flow into the Gas Upgrading System shall be no greater than 1,200 scfm. However, the use of a maximum H_2S concentration of 3,500 ppm into the Gas Upgrading System and the use of 360 hours and 240 hours of operation in Scenarios 2 and 3, respectively, were estimates used to approximate the worst-case potential-to-emit (PTE) of emissions from the facility. The Hearing Officer is reasonably convinced that the various parametric monitoring requirements, recordkeeping and reporting requirements, and the calculation methodologies currently contained in the draft Air Quality Permit are sufficient to ensure compliance with all applicable state and federal air quality regulations, as well as limiting the facility's PTE sufficiently to ensure that its actual emissions are low enough to remain below the emission threshold (100 tons per year of SO_2) that would require a Title V Air Quality Permit.

Inspection and Maintenance (I/M) Requirements within the Air Quality Permit

The Hearing Officer concurs that the current draft Air Quality Permit relies heavily on the inspection and maintenance (I/M) and calibration recommendations of the manufacturers of the proposed facility's air pollution control equipment and parametric monitors. Given the unique nature of the proposed facility, the Hearing Officer will recommend the remedy of a new Specific Condition to the draft Air Quality Permit that is appropriate to address the issue. The recommendation can be found in the Conclusions and Recommendations section of this Hearing Officer's Report.

Concerns Regarding SO_2 and H_2S Ambient Concentrations and Human Health Impacts

In the early 1970's, the EPA listed six major air pollutants that affected the quality of ambient air and established concentration limits for these pollutants. These limits are known as the National Ambient Air Quality Standards (NAAQS). Primary limits or standards were established to protect human health and secondary standards were established to protect human welfare and the quality of life. Through the years, the NAAQS have been revised and amended to account for evolving scientific understanding of air pollution and its impacts. Based on the content of the Air Quality Permit application for the proposed Align RNG facility, the pollutant of concern from the among the six for which NAAQS have been established is sulfur dioxide (SO_2). The NAAQS for SO_2 are the following:

- Primary: 75 parts per billion (ppb), with a 1-hour averaging period.
- Secondary: 0.5 parts per million (ppm), with a 3-hour averaging period.

Using the DAQ's technical analysis of the Air Quality Permit application for the proposed Align RNG facility, the staff members of the DAQ's Air Quality Analysis Branch conducted computer dispersion modeling to predict the potential impact of the operation of the proposed facility on ambient concentrations of SO_2 at the fence line of the facility's property. Per the dispersion modeling, the maximum potential impact of potential SO_2 emissions of ambient concentrations relative to the NAAQS are as follows:

Pollutant	Averaging Period	Maximum Impact ($\mu g/m^3$)	Maximum Impact (ppb)	NAAQS ($\mu g/m^3$)	NAAQS (ppb)	% of NAAQS
Sulfur Dioxide	1-hour	128.9	49.2	196	75	65.8
	3-hour	114.9	43.9	1,300	500	8.8
	24-hour	69.0	26.3	365	140	18.9
	Annual	8.2	3.1	80	30	10.3

A memorandum from the DAQ's Air Quality Analysis Branch, summarizing results of the dispersion modeling for SO_2 with a brief discussion of the technical details relevant to the modeling, can be found in the Appendix to this Hearing Officer's Report.

15A NCAC 2D .1100 "Control of Toxic Air Pollutants" establishes an Acceptable Ambient Level (AAL) for H_2S of 0.12 micrograms per cubic meter (mg/m^3, 24-hour averaging period) at the fence

line of the proposed Align RNG facility property. Using the DAQ's technical analysis of the Air Quality Permit application for the proposed facility, the staff members of the DAQ's Air Quality Analysis Branch also conducted computer dispersion modeling to determine if potential H_2S emissions from the proposed facility would cause an exceedance of the H_2S AAL. Per the dispersion modeling, it was determined that maximum impact of potential H_2S emissions from the proposed facility would reach only 2.1% of the H_2S AAL listed in 15A NCAC 2D .1100.

As with SO_2, a memorandum from the DAQ's Air Quality Analysis Branch, summarizing results of the dispersion modeling for H_2S can be found in the Appendix to this Hearing Officer's Report.

Concerns about Parametric Monitoring Frequency

The draft Air Quality Permit currently requires a significant amount of relevant monitoring, including the following:

- Hourly measurements of the flow rate and H_2S concentration of the tail gas at the outlet of the Gas Upgrading System (Emission Source ID No. ES-GUS), both feeding into and bypassing the iron sponge scrubber systems (Control Device ID Nos. CD-1 and CD-2).

- Hourly measurements of the H_2S concentration at the outlet of the iron sponge scrubber systems while the Gas Upgrading System is operating.

- Hourly measurements of the flow rate of the tail gas that bypasses the iron sponge scrubber systems.

- Instantaneous flow rate measurements of the natural gas sent to the enclosed hybrid flare (Control Device ID No. CD-3) whenever the above referenced measurements are taken.

- To monitor for potential H_2S breakthrough in the exit gases of the iron sponge scrubber systems, the differential pressure (ΔP) across the scrubbers must be monitored and recorded at least once per day while the while the Gas Upgrading System is operating. As alternative to maintaining the ΔP across the scrubbers below 30 inches w.c. as an indicator that scrubber media replacement is not necessary, the proposed facility may choose to demonstrate that scrubber breakthrough has not occurred by installing an analyzer to determine the concentration of hydrogen sulfide in the outlet stream once every eight (8) hours (up to three times per day, and a minimum of once per day) for each day the Gas Upgrading System is operating. When the outlet concentration of hydrogen sulfide (H_2S) is greater than 100 parts per million (ppm) for two consecutive samples (per manufacturers recommendation), the scrubber media would be replaced.

- The H_2S concentration in the biogas must be analyzed once per calendar quarter.

- The draft Air Quality Permit allows the proposed facility to submit an Air Quality Permit application for less frequent monitoring if its hourly readings are found to be consistent and stable.

The Hearing Officer is reasonably convinced that the vast majority of the various parametric monitoring requirements, recordkeeping and reporting requirements, and the calculation methodologies currently contained in the draft Air Quality Permit are sufficient to monitor compliance with all applicable state and federal air quality regulations, as well as limiting the facility's PTE sufficiently to ensure that its actual emissions are low enough to remain below the emission threshold (100 tons per year of SO_2) that would require a Title V Air Quality Permit. However, the Hearing Officer concurs that the H_2S concentration of the biogas into the facility should be analyzed more frequently. The recommendation of the Hearing Officer can be found in the Conclusions and Recommendations section of this Report.

Conversion Rate of the Candlestick Flare (Control Device ID No. CD-4)

Section 5.3.3 (Natural Gas Processing) of AP-42 "Fifth Edition Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources" makes clear that the utilization of flaring is appropriate for the destruction of H_2S in tail gases, converting the major pollutant of concern to SO_2 as a combustion by-product. A conversion rate of H_2S to SO_2 of nearly 100 percent is likely if the flares in question are properly operated and maintained. The emission factor for SO_2 emissions from these operations has a rating of "A," the highest rating in terms of reliability. The Hearing Officer finds that the use of a 98% H_2S destruction efficiency in the calculation methodology of the draft Air Quality Permit is appropriate if the flares are properly operated and maintained.

In Response to Comments in Favor of Permit Issuance

Applicability of 15A NCAC 2D .0516

It is the interpretation of the DAQ and the Hearing Officer that the Gas Upgrading System (Emission Source ID No. ES-GUS), the enclosed hybrid flare (Control Device ID No. CD-3), and the candlestick flare (Control Device ID No. CD-4) are subject to the requirements of 15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources." It cannot be reasonably argued that the enclosed hybrid flare and candlestick flare are not combustion sources or that they do not have stacks. Their purpose is to convert the constituents of the tail gas, off-specification product gas, and untreated biogas, with the primary pollutant of concern being H_2S, into combustion by-products, which will be overwhelmingly comprised of CO_2, water vapor (H_2O), and SO_2. In effect, by being an air pollution control device for H_2S, the enclosed hybrid flare and candlestick flare become emission sources of SO_2 and are subject to the requirements of 15A NCAC 2D .0516.

Compliance During Facility Startup

The Hearing Office concurs that the statement "if the emission rate of sulfur dioxide (lb./MM Btu) from CD-3 exceeds the limit defined in 15A NCAC 02D .0516, the Permittee shall be in violation of the permit," contained within Specific Condition A.3.b of the current draft Air Quality Permit, is not accurate, as under 15A NCAC 2D .0535, an exceedance of the emission standard that occurred under startup, shutdown, and malfunction conditions could be permissible, after consideration of the factors listed in the Rule. As a Special Condition detailing the requirements of 15A NCAC 2D .0535 is already contained in the draft Air Quality Permit, the Hearing Officer suggests that an additional phrase should be added to the statement in question, clarifying the applicability of 15A NCAC 2D .0535 to excess emissions during periods of startup, shutdown, and malfunction conditions.

Monitoring and Recordkeeping Frequency

Given the unique nature of the proposed Align RNG facility and its processes, it is the finding of the Hearing Officer that the frequency and nature of monitoring and recordkeeping in the draft Air Quality Permit should not be relaxed. In fact, it is the concern of the Hearing Officer that quarterly measurements of the H_2S concentration in the biogas being delivered into the proposed facility, currently required in Specific Condition A.6.d.ii of the draft Air Quality Permit, are not sufficient to account for potential seasonal variations. As such, it is the recommendation of the Hearing Officer that the H_2S concentration in the biogas should be analyzed on a monthly basis for a 12-month period, after which the proposed facility may submit an Air Quality Permit application for less frequent analysis of the biogas, based on the analysis of the results of monthly H_2S concentration measurements. The Hearing Officer's recommendations on this issue can be found in the Conclusions and Recommendations Section of this Report.

Technical Revisions

The Hearing Officer concurs with comments on the following technical revisions to the draft Air Quality Permit:

- In Specific Condition A.3.b and A.6.d.iii, the H_2S concentrations used in the SO_2 emission rate equations should be divided by 10^6 to be mathematically correct.

- The language of Specific Condition A.6.d.iii of the current draft Air Quality Permit should be changed such that the equations to be used for calculating the SO_2 emission rate in the various operating scenarios define SO_2 emissions from trace sulfur compounds as a value of 0.05 lb./hr. unless and until the proposed facility demonstrates, through sampling, that an alternate value is more representative.

- The language of Specific Condition A.6 should be revised such that it requires that total daily SO_2 emissions be calculated to 2 significant figures after the decimal point.

- The equation for calculating the daily facility-wide emission rate (lb./day) of H_2S should be included in Specific Condition A.8.f of the draft Air Quality Permit.

These suggested technical revisions to the draft Air Quality Permit should not have an impact on the DAQ's ability to determine the proposed Align RNG facility's compliance with state and federal air quality regulations. A summary of these technical revisions can be found in the Conclusions and Recommendations Section of this Report.

V. Conclusions and Recommendations

After considering all public comments addressing whether the DAQ should issue a new Air Quality Permit (Permit No. 10644/R00) to Align RNG, LLC to construct and operate a new biogas processing and conditioning system, the recommendations of the Hearing Officer are as follows:

- Air Quality Permit No. 10644/R00 should be issued to Align RNG, LLC with the following modifications:

  - The rated capacity of the Gas Upgrading System (Emission Source ID No. ES-GUS), listed in the Air Quality Permit application as 1,200 scfm, should be added to the description of this equipment in the equipment list of the draft Air Quality Permit and a Specific Condition should be added which states that the maximum biogas flow into the Gas Upgrading System shall be no greater than 1,200 scfm.

  - The facility will be subject 15A NCAC 2D .0521 "Control of Visible Emissions." An appropriate reference to the rule should be added to Specific Condition A.1 of the Air Quality Permit, as well as an additional and appropriate Specific Condition which outlines the requirements of the rule for the facility.

  - The facility will be subject 15A NCAC 2D .1806 "Control and Prohibition of Odorous Emissions." An appropriate reference to the rule should be added to Specific Condition A.1 of the Air Quality Permit, as well as an additional and appropriate Specific Condition which outlines the requirements of the rule for the facility.

  - The phrase "if the emission rate of sulfur dioxide (lb./MM Btu) from CD-3 exceeds the limit defined in 15A NCAC 02D .0516, the Permittee shall be in violation of the permit," found within Specific Condition A.3.b of the current

draft Air Quality Permit, should be modified to indicate that the facility would be subject to the provisions of 15A NCAC 2D .0535 "Excess Emissions Reporting and Malfunctions" during startup, shutdown, and malfunction conditions.

- To account for potential seasonal variations of the H_2S concentration, the Specific Condition of the draft Air Quality Permit that requires the H_2S concentration in the biogas to be analyzed once per calendar quarter should be revised. The revised Specific Condition should require the H_2S concentration of the biogas to be analyzed on a monthly basis, beginning with the initial operation of the facility. After 12 calendar months, the proposed facility may submit an Air Quality Permit application for less frequent analysis of the biogas, based on the analysis of the results of monthly H_2S concentration measurements.

- As the current draft Air Quality Permit relies heavily on the inspection and maintenance (I/M) and calibration recommendations of the manufacturers of the proposed facility's air pollution control equipment and parametric monitors, a Specific Condition should be added to the draft Air Quality Permit requiring a written inspection, maintenance, and calibration plan to be submitted to the DAQ for approval within 30 days of the issuance of the final purchase contracts by the facility to vendors of any air pollution control equipment, parameter monitors, and data recording equipment. Once approved by the DAQ, a copy of the written plan must be kept onsite at all times and made available to DAQ personnel upon request.

- In Specific Condition A.3.b and A.6.d.iii, the H_2S concentrations used in the SO_2 emission rate equations should be divided by 10^6 to be mathematically correct.

- The language of Specific Condition A.6.d.iii of the current draft Air Quality Permit should be changed such that the equations to be used for calculating the SO_2 emission rate in the various operating scenarios define SO_2 emissions from trace sulfur compounds as a value of 0.05 lb./hr. unless and until the proposed facility demonstrates, through sampling, that an alternate value is more representative."

- The language of Specific Condition A.6 should be revised such that it requires that total daily SO_2 emissions be calculated to 2 significant figures after the decimal point.

- The equation for calculating the daily facility-wide emission rate (lb./day) of H_2S should be included in Specific Condition A.8.f of the draft Air Quality Permit.

T. Ray Stewart, Jr., P.E., CPM
Hearing Officer

January 5, 2021
Date

Appendix A:

Draft Air Quality Permit and Permit Review

Appendix B:

Align RNG Environmental Justice Report

Appendix C:

DAQ Memorandum on Sulfur Dioxide (SO_2) Modeling for the NAAQS

Appendix D:

DAQ Memorandum on Hydrogen Sulfide (H_2S) Modeling for AAL

Appendix E:

December 8, 2020 Letter from the DAQ to Align RNG requesting Additional Information and the December 11, 2020 Response Letter from Align RNG

Appendix F:

December 16, 2020 Letter from the DAQ to Align RNG requesting Additional Information and the January 4, 2021 Response Letter from Align RNG