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**September 29, 2021 VIA E-MAIL**

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**Re: Optima TH, LLC Request for a Declaratory Ruling**

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To the Above Addressees:

On behalf of Optima TH, LLC, please find enclosed a Request for a Declaratory Ruling pursuant to N.C. Gen. Stat. § 150B-4 and 15A N.C. Admin. Code 2I .0601 *et seq.*

If you would like a hard copy of the filing, please let me know. In talking with Phillip, I understand an electronic copy is sufficient for him and his client.

We look forward to working with you.

Best regards,

**Womble Bond Dickinson (US) LLP**

Susan Cooper
Attorney at Law

SHC:hlm
Attachments

Ex. 1, Optima's Initial 2020 Air Quality Permit Application
Ex. 2, May 25, 2021 Optima Letter to DAQ
Ex. 3, July 30, 2021 Optima Title V Air Permit Application
Ex. 4, February 25, 2021 DAQ Air Permit Application Review for Optima
Ex. 5, Air Permit No. 10673R00 issued to Optima TH, May 4, 2021
Ex. 6, July 28, 2021 Optima Notice for Updating Information in Permit Application
Ex. 7, June 29, 2021 DAQ Letter to Optima Counsel
Ex. 8, August 19, 2021 DAQ Signed Incomplete Letter to Optima (deemed modification)
Ex. 9, August 27, 2021 Follow up from Call on DAQ Incompleteness Determination – Optima TH – Application No. 0900096.21A
Ex. 10, September 17, 2021 DAQ Response to Facility Compliance and Permitting Questions Optima TH 0900096
Ex. 11, DAQ Instructions for 2Q.0318 – Changes Not Requiring Permit Revisions
Ex. 12, January 2021 Air Permit No. 10644R00 for Align RNG BF Grady Road
Ex. 13, February 26, 2020 Align RNG - BF Grady Road Air Quality Permit Application
Ex. 14, January 17, 2020 DAQ Letter to Align RNG – BF Grady Road
Ex. 15, January 5,2021 DAQ Application Review Align RNG - BF Grady Road

cc via e-mail: Optima TH, LLC
Cavanaugh & Associates

BEFORE THE NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

| | | |
|---|---|---|
| OPTIMA TH, LLC | ) | REQUEST FOR DECLARATORY RULING |
| Petitioner. | ) | |

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Pursuant to N.C. Gen. Stat. § 150B-4 and 15A N.C. Admin. Code 2I .0601 *et seq.*, Optima TH, LLC ("Optima") submits this Request for a Declaratory Ruling to the North Carolina Environmental Management Commission ("the Commission").

## EXECUTIVE SUMMARY

Optima requests a declaratory ruling on the material conflict and/or inconsistency regarding the interpretation and application[1] of 15A NCAC 2D .0516 by North Carolina Department of Environmental Quality, Division of Air Quality ("DAQ"), including within DAQ's Regional Offices, relative to the supplemental fuel Optima proposes for use in a flare.

At its facility located in Tar Heel, North Carolina, Optima purchases renewable methane (biogas), from a pre-existing, permitted biogas supplier, recovers the methane from the biogas, and ultimately injects the methane as renewable natural gas ("RNG") into an existing utility's natural gas pipeline. Optima uses an advanced gas upgrading system ("GUS") to recover the methane product gas which is injected into a natural gas pipeline. The GUS also produces a low-BTU waste gas ("tail gas") that consists primarily of carbon dioxide (because most of the high-BTU methane is removed) that cannot be injected into the pipeline. A candlestick flare ("flare") is used as an odor control device to oxidize the tail gas. Optima initially proposed to oxidize the tail gas using a portion of biogas it receives such that it by-passed the GUS as supplemental fuel. Optima later determined the biogas by-pass could not be used without materially damaging the GUS. Optima proposed to use primarily natural gas as a substitute for the biogas.

[1] Throughout this petition, references to the DAQ's "interpretation," "application" and "position" are used interchangeably.

The DAQ takes an erroneous and inconsistent position that Optima cannot use natural gas purchased from a utility as supplemental fuel to increase the heating value of its low-BTU waste gas to assist with oxidation of the waste gas and to achieve compliance with 15A NCAC 2D.0516 ("2D.0516" or the "rule"). The DAQ takes the position that the "BTU input" in rule 2D.0516 requires Optima to only use a supplemental fuel source that is derived from the "gas streams associated with [Optima's] operations" and prohibits the use of natural gas purchased from a public utility to increase the heating value to achieve compliance with 2D.0516.[2] The DAQ also states in order to continue processing Optima's Title V permit application, Optima must agree to utilize biogas from the RNG process as supplemental fuel or install a sulfur removal system sufficient to meet the rule.

The DAQ's position is not consistent with the plain language of the rule nor the stated purpose of the rule.[3] The rule establishes a maximum limit on the rate of emission of $SO_2$ per unit heat measurement of the waste gas and requires inclusion of <u>all</u> fuels and wastes combusted when determining compliance. It does not restrict the type or source of fuel, nor the reason the fuel was included. The DAQ position is also contrary to the position DAQ took in a permit issued for a larger RNG facility in January, 2021 which allows the use of natural gas as a supplemental fuel in a flare.

Optima is directly aggrieved by DAQ's position. The DAQ's interpretation prevents Optima from conducting its operations and has significant economic impacts without environmental benefits that jeopardize the viability of the RNG project. The DAQ's position is arbitrary and capricious, and a regulatory overreach that dictates how Optima must conduct its process and operations in order to comply with 2D.0516.

To resolve this material conflict and inconsistency in the application of Rule 2D.0516 to their RNG facility, Optima requests the Commission issue the following rulings regarding the requirements of 2D.0516 to the facts described herein:

(a) 15A NCAC 2D.0516(a) does not prohibit the use of supplemental fuels, including natural gas purchased from a utility, to increase the heating value of flared waste biogas to enhance oxidation and to comply with 2D.0516.

[2] Ex. 7, June 29, 2021 DAQ Letter to Optima Counsel.
[3] Rule 15A NCAC 2D .0502 states the purpose of the emission control standards set out in the Section, including 2D.0516, is to establish maximum limits on the rate of emission of air contaminants into the atmosphere.

(b) Optima is allowed to use supplemental fuels, including natural gas purchased from a utility, to increase the heating value of the tail gas in its candlestick flare to enhance oxidation and achieve compliance with 2D.0516.

In support of this Request for a Declaratory Ruling and pursuant to N.C. Gen. Stat. § 150B-4 and 15A N.C. Admin. Code 2I .0601 *et seq.*, Optima submits the following:

**(I) The name and address of Petitioner:**

Optima TH, LLC with a mailing address of 4441-106 Six Forks Road, Unit 379, Raleigh, North Carolina 27609.

**(II) The rule, statute or order upon which a ruling is desired:**

15A NCAC 02D .0516 SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

(a) Emission of sulfur dioxide from any source of combustion discharged from any vent, stack, or chimney shall not exceed 2.3 pounds of sulfur dioxide per million BTU input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. Sulfur dioxide formed or reduced as a result of treating flue gases with sulfur trioxide or other materials shall also be accounted for when determining compliance with this standard.

**(III) A statement as to whether the request is for a ruling on (A) the validity of a rule; or (B) the applicability of a rule, order or statute to a given factual situation; or (C) a conflict or inconsistency within the Commission or the Department regarding interpretation of a law or rule adopted by the Commission:**

Optima requests a declaratory ruling on the material conflict and/or inconsistency regarding the interpretation and application of 15A NCAC 2D.0516 by DAQ, including within DAQ's Regional Offices, relative to the supplemental fuel Optima proposes for use in a flare.

The DAQ's position is not consistent with the plain language of the rule or the stated purpose of the rule. The position is also contrary to the position DAQ took in a permit for a larger RNG facility issued in January, 2021 which allows the use of natural gas as a supplemental fuel in a flare. Hence, there exists material conflict and/or inconsistency within the DAQ regarding the rule.

**(IV) Statements or data which demonstrate that the petitioner is aggrieved by the rule or statute or its potential application to the petitioner:**

**A. STATEMENT OF FACTS AND INTERPRETATION BY DAQ**

Optima's RNG operation located in Tar Heel, North Carolina purchases renewable methane, herein after referred to as biogas, from Smithfield Fresh Meats Tar Heel Facility ("Smithfield"). Smithfield has an existing air permit related to its waste biogas emissions from an anaerobic digester and biogas collection system. Optima purchases this existing biogas, recovers the methane from the biogas, and ultimately injects the methane as renewable natural gas ("RNG") into an existing utility's natural gas pipeline.

Optima's facility provides renewable energy for our state and reduces greenhouse gas emissions that would be otherwise emitted from the biogas from the Smithfield facility as well as via displacement of imported fossil-derived natural gas consumed at a Duke Energy combined cycle power plant operating in North Carolina. RNG projects are touted by NCDEQ in North Carolina's Clean Energy Plan as a means to help our state realize decreased carbon emissions, improve alternative fuel supply, and decrease reliance on imported fuels.[4] The North Carolina Legislature, through the 2007 Renewable Energy and Energy Efficiency Portfolio Standards, has also long supported the recovery of energy from organic wastes, establishing goals for investor-owned utilities in North Carolina to use renewable energy sources as a percentage of their energy needs. Optima's facility is a step towards achieving the energy and climate goals of the North Carolina Legislature and the Governor.[5]

Optima uses an advanced gas upgrading system ("GUS") to recover the methane from the biogas resulting in two gas streams:

(1) "product gas" or "RNG" which is the methane gas component and is ultimately injected into a natural gas pipeline as natural gas; and

(2) "tail gas" - a low-BTU[6] waste gas primarily consisting of carbon dioxide (because most of the high-BTU methane is removed) that cannot be injected into the pipeline.

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[4] NCDEQ Clean Energy Plan (October 2019) at page 26. NC DEQ: Clean Energy Plan

[5] See, e.g., NCGS §62-133.8 (Renewable Energy and Energy Efficiency Portfolio Standard) (recognizing swine waste as part of renewable energy portfolio); Governor Cooper's Executive Order 80 (reducing greenhouse emissions); N.C. Energy Policy Council Biennial Reports for the Governor and Legislature (https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-policy-council)

[6] The British thermal unit (BTU) is a unit of heat.

During Optima's normal operation, a candlestick flare ("flare") is used as an odor control device to oxidize the tail gas.[7] The flare oxidizes certain components of the tail gas, specifically hydrogen sulfide ("$H_2S$"), resulting in potential $SO_2$ emissions that require a Title V permit.[8] The tail gas is unique in that it has very low BTUs because the GUS recovers the majority of the high BTU methane from the biogas for RNG. For example, the tail gas has 137.75 BTU/standard cubic foot ("scf") compared to 1020 BTU/scf for natural gas.[9]

Optima submitted an air permit application that included the use of biogas to provide supplemental fuel to the low-BTU tail gas in the flare to increase the heating value for oxidation of the tail gas and to achieve compliance with the 2.3 lbs $SO_2$/MMBTU limit in 2D.0516. [10] DAQ permitted the use of the biogas as a supplemental fuel.[11]

1. <u>During the Permit Review Process, the DAQ Approved Optima's Use of Natural Gas as Pilot Fuel to Contribute to the Heating Value Calculations to Determine Compliance with 2D.0516</u>

The DAQ's permit review document acknowledged that Optima's operation would use supplemental fuel, mainly biogas, to assist with oxidation and to achieve compliance with 2D.0516.[12] During the air permit review process and in response to Optima's request, the DAQ changed Optima's draft permit to specifically authorize the use of natural gas, approved as a pilot flame fuel, to be included in increasing the amount of BTUs to determine compliance with the rule. On page 22 of DAQ's permit review document, the DAQ states:

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[7] As described in Optima's initial permit application, the flare was also designed for two additional infrequent operating scenarios: (1) "by-pass operation" where unrefined biogas from Smithfield is sent around the GUS directly to the flare if the GUS was down for maintenance (this operation is no longer viable because by-passing the GUS materially damaged the GUS, as explained herein), and (2) "off-spec operation" where product gas that does not meet pipeline specifications is sent to the flare. Ex. 1, Optima's Initial 2020 Air Permit Application. The by-pass operation scenario is no longer feasible as Optima advised the DAQ in May, 2021. Ex. 2, May 25, 2021 Optima letter to DAQ. Optima learned during normal operations when unrefined biogas was sent directly to the flare as supplemental fuel, by-passing the GUS, material damage occurred to the GUS.

[8] A potential to emit of 170.86 tons of $SO_2$ per year is shown in Optima's initial permit application. See Ex. 1. Based primarily on operations efficiencies to recover methane and the intended use of a substitute supplemental fuel, mainly natural gas instead of unrefined biogas, Optima's updated Title V permit application submitted July 30, 2021 shows the facility has a potential to emit 128 tons of $SO_2$ per year. *See* Ex. 3, July 30, 2021 Title V Permit App.

[9] *See* e.g., Ex. 3, July 30, 2021 Title V Permit App., Calculation page 5, Normal Operations.

[10] Ex. 1, Initial 2020 Air Permit application at p.2. At page 5, Optima also identified another compliance method by not extracting as much methane from the waste tail gas going to the flare, which Optima also noted as inefficient and not environmentally friendly since the goal of the RNG operation is to maximize methane extraction for RNG and reduce carbon emissions.

[11] Exhibit 5, Air Permit No. 10673R00 issued to Optima TH on May 4,2021.

[12] Ex. 4, February 25, 2021 DAQ Air Permit Application Review at pp. 3-4, Operating Scenario 1-Normal Operation.

> "The DAQ will revise the equations 1 and 3 to include the contribution of natural gas with regard to calculating average daily heat input rate of flare and average heat content of fuels combusted." Ex. 4 at pp.21-22.

The DAQ's review also included the calculation of facility emissions from the flare by use of emissions factors for natural gas combustion. Ex. 4 at p. 11-12.

2. The DAQ Issued Optima's Air Permit Authorizing Use of Supplemental Fuel, including Natural Gas, to Determine Compliance with 2D.0516

On May 4, 2021, the DAQ issued an air permit ("Air Permit") to Optima under Section 300 for construction and operation of the facility and described the flare as "one biogas/tail gas/product gas/**natural gas-fired** non-assisted candlestick flare" (emphasis added).[13] As required by the rule and consistent with DAQ's comments in its permit review document, the Air Permit required that calculations for determining compliance with rule 2D.0516 include the BTU heating value of all potential gas streams, specifically including natural gas.[14]

3. Optima's Notice to Substitute Natural Gas for Biogas as Supplemental Fuel

Optima determined sending a slip stream of biogas as supplemental fuel directly to the flare materially and significantly damaged the GUS and the manufacturer would not warrant the equipment if this continued. In a May 25, 2021 letter to DAQ and a follow-up June 3, 2021 phone conference, Optima explained the problem it encountered with using biogas as supplemental fuel and advised the DAQ that biogas could no longer be sent directly to the flare by by-passing the GUS.[15] During the June 3rd call, Optima communicated to the DAQ that Optima would substitute natural gas or propane gas as supplemental fuel. The DAQ did not advise Optima at that time that it could not use natural gas or propane gas as supplemental fuel to increase the BTUs of its tail gas.

On July 28, 2021, Optima notified DAQ of updates to its initial air permit application, including again that Optima would have to use a substitute source of supplemental fuel instead of biogas to increase the energy to efficiently oxidize the tail gas constituents and achieve compliance with 2D.0516, and that Optima would no longer operate under the biogas by-pass

[13] Ex. 5, Air Permit at page 1.
[14] Ex. 5 at pp. 2-5 (see equations that provide for heating value and heat input to include natural gas).
[15] Ex. 2, May 25, 2021 Optima letter to DAQ

operation because of the severe damage to the GUS.[16] Optima explained it would increase the use of natural gas, which the DAQ had already approved as pilot flame fuel, likely along with a small amount of product gas from the GUS, to increase the heat input for oxidation of the tail gas and achieve compliance with 2D.0516.

As explained further in Optima's July 28, 2021 letter, under 15A NCAC 02Q.0318 Changes Not Requiring Permit Revisions, Optima's changes in fuels and other operational changes are minor, qualified changes that do not require a permit modification prior to making the changes because they: (1) do not violate any existing regulatory requirements or add new applicable requirements; (2) will not cause emissions under the current permit to be exceeded; (3) do not generate additional waste; (4) do not require a permit pursuant to 15A NCAC2Q.0700; and (5) do not require a professional engineer's seal.[17] The DAQ guidance on evaluating changes under 2Q.0318 specifically gives the example of "increasing or changing fuels" used in the permitted source that affects emissions but does not result in an emission increase above an existing emission limit, as an example of a qualified change.[18] Optima proposed to increase the already permitted use of natural gas and change the supplemental fuel from biogas to natural gas – a qualified change not requiring a permit modification.[19]

Optima also submitted on July 28, 2021 its Title V permit application which also stated that the proposed use of biogas as supplemental fuel was discontinued due to damage to the GUS and instead, both natural gas, and possibly a small amount of product gas, would be used as substitute supplemental fuels.[20] Natural gas, biogas and product gas are very similar in the sense the energy value of the three is derived from methane molecules. The use of these substitute supplemental fuels to raise the energy value (BTUs) and efficiently oxidize the tail gas constituents will also provide for compliance with 2D.0516 and not result in new or increased emissions as compared to the biogas.[21]

4. <u>DAQ's Response to Optima Using Natural Gas as Supplemental Fuel and Request for Permit Modification.</u>

[16]Ex. 6, July 28, 2021 Optima notice letter to DAQ.
[17] Ex. 6.
[18] Ex 11, DAQ Instructions for 02Q .0318 Changes Not Requiring Permit Revisions
[19] See Ex. 11.
[20] Ex. 3.
[21] Ex. 6, July 28, 2021 Optima notice letter to DAQ.

After Optima advised the DAQ that Optima would need to primarily utilize natural gas as the supplemental fuel, the DAQ informed Optima by letter dated June 29, 2021 that use of natural gas to increase the heat input of gas combusted by the flare "is not an appropriate means of compliance with 2D.0516."[22] The DAQ stated "it is DAQ's interpretation that the "BTU input" referenced in 2D .0516 refers to the "BTU input associated with combustion of the gas stream associated with the Facility's normal operations and not an increase in BTUs generated through combustion of natural gas or propane purchased offsite to artificially raise the heat input of gas being combusted by the flare".[23] The DAQ provided no references or citations to support this interpretation. The DAQ did not advise Optima at that time that to comply with the air permit only biogas could be used.

On August 19, 2021, the DAQ sent a letter to Optima stating Optima's substitution of natural gas as supplemental fuel and no longer sending biogas to the flare required a "permit modification" and revoked its earlier completeness determination of Optima's Title V application until Optima submitted a permit modification for its current Section 300 operating permit.[24] On a telephone call, Optima discussed with DAQ that the use of natural gas was already authorized by the existing permit and the minor changes did not require a permit modification under 2Q.0318.[25] The DAQ acknowledged that 2Q.0318 is applicable to Optima's existing Section 300 permit but did not evaluate whether the requirements were satisfied and said it would provide guidance on that issue and use of natural gas the following week.

On September 17, 2021, Ms. Heather Carter, DAQ Fayetteville Regional Office Supervisor, notified Optima by letter that DAQ's application/interpretation of Rule 2D.0516 does not allow use of natural gas as a supplemental fuel to achieve compliance with 2D.0516.[26] Specific statements in the letter, and errors in factual accuracy and/or inconsistency in applications/interpretations are detailed below:

(1) "Since early June 2021", Optima has been in communication with the DAQ regarding methods to comply with 2D.0516. This is inaccurate. As discussed above, Optima first raised this issue in its August, 2020 permit application that supplemental fuel is needed to increase the heating value of the gas to oxidize the tail gas

[22] Ex. 7.
[23] Ex. 7.
[24] Ex. 8, August 19, 2021 letter from DAQ.
[25] Ex. 9, August 27, 2021 Follow up Call on DEQ Incompleteness Letter to Optima.
[26] Ex. 10, Sept. 17, 2021 DAQ letter

constituents and comply with the rule.[27] DAQ authorized the use of biogas as supplemental fuel to comply with the rule in the permit issued on May 4, 2021. Also, in a May 25, 2021 letter, Optima specifically notified the DAQ that it needed a substitute fuel for the slip stream biogas and planned to primarily use natural gas, an approved fuel to the flare.[28]

(2) The DAQ's position is that use of natural gas is not an "*appropriate* means of compliance" to increase the heating value to achieve compliance with 2D.0516. The DAQ cited no regulatory authority for this position.

(3) The September 17 and June 29, 2021[29] letters from the DAQ to Optima state that natural gas is being purchased to "artificially" raise the heat input of the gas being combusted in the flare to achieve compliance. Optima has not stated that and does not agree the natural gas is used to "artificially" raise the heat input.

(4) DAQ states its position is consistent with the approach it took in permitting of the Align's BF Grady Road RNG project. This is not wholly accurate and is misleading. In fact, the DAQ Wilmington Regional Office permitted the Align facility on January 6, 2021 to use natural gas as supplemental fuel to provide heat, oxidize, and combust the low-BTU tail gas constituents in its flare and to achieve compliance with 2D.0516.[30]

(5) DAQ states using natural gas as supplemental fuel is not allowed under Optima's current permit. As conceded by the DAQ, the DAQ permit authorized Optima to use biogas as supplemental fuel to achieve compliance with the rule. It is unclear what DAQ's regulatory authority is for allowing Optima to purchase an energy source (biogas) from Smithfield to use as supplemental fuel, but not allowing Optima to purchase an energy source (natural gas) from a public utility for oxidation of the tail gas and to achieve compliance with the rule. The current air permit does not restrict use of natural gas, product gas or propane gas and includes those fuels in the equations for determining compliance with 2D.0516.

[27] Ex. 1.
[28] Ex. 2 May 25, 2021 letter to DAQ.
[29] Ex. 7, June 29, 2021 DAQ letter to Optima's counsel.
[30] Ex. 12, January 2021 Air Permit for Align RNG Air Permit No. 10644R00 at Specific Condition A 4.

(6) "It is the DAQ's position that in order for Optima to comply with the facility's current permit, compliance with 02D .0516 **must** be achieved by the methods included in the original permit application." (emphasis added). DAQ has been advised that for Optima, biogas cannot technically or economically be used for supplemental fuel but natural gas can be substituted for the biogas.[31]

(7) Nevertheless, the DAQ states it will not process Optima's Title V air permit application unless (a) Optima agrees only to use biogas as supplemental fuel to achieve compliance with 2D.0516 or (b) Optima installs a sulfur removal control technology sufficient to meet 2D.0516.[32] Despite Ms. Carter's inference that installation of sulfur control technology will be enough to meet 2D.0516, the Align BF Grady Road RNG project, as permitted, uses a hydrogen sulfide removal system but does not eliminate the need for the use of supplemental fuel to complete the oxidation of the hydrogen sulfide remaining in the tail gas to achieve compliance with the rule. The Grady Road RNG project uses purchased natural gas as supplemental fuel rather than biogas which the DAQ is requiring of Optima. Additionally, Optima has previously communicated to the DAQ that installation of a hydrogen sulfide removal system is not economically reasonable for its scale of operation, nor is such control technology required by any rule.[33] Further, the DAQ-conducted air dispersion modeling of $SO_2$ emissions from the flare using a worst case, "unrealistic" potential $SO_2$ emission rate and assuming the use of supplemental biogas, demonstrated the resulting maximum concentration was only 22.2% of the controlling $SO_2$ 1-HR NAAQS.[34] Additional control technology is not necessary.

## B. DESCRIPTION IDENTIFYING THE CONFLICTS OR INCONSISTENCIES REGARDING APPLICATION/INTERPRETATION OF RULE 2D.0516 BY DAQ

[31] Ex. 2 at page 2; Ex. 6 at pp. 2-3.
[32] Ex. 10, Sept. 17, 2021 DAQ letter.
[33] Ex. 6.
[34] Ex. 4 at pp.26-27.

The DAQ's interpretation is the "BTU input" in rule 2D.0516 requires Optima to only use a supplemental fuel source that is derived from the gas streams associated with Optima's operations and prohibits the use of natural gas purchased from a public utility, to increase the heating value to achieve compliance with 2D.0516. The DAQ's position is not supported by the plain language of the rule and the stated purpose of the rule. Also, the DAQ's position is contrary to the position it took at another RNG facility which allows the use of natural gas as a supplemental fuel. The DAQ's erroneous interpretation of rule 2D.0516 imposes additional requirements not contained in the rule adopted by the Commission and the DAQ has inconsistently applied the rule 2D.0516. Additionally, the DAQ is also refusing to process Optima's Title V permit application unless Optima agrees to utilize biogas from the RNG process as supplemental fuel or install a sulfur removal system sufficient to meet the rule.

1. Rule 2D.0516 Does Not Prohibit Use of Supplemental Fuels

Rule 2D.0516 on its face does not prohibit the use of supplemental fuels, including natural gas, to meet the 2.3 pounds per MMBTU heat input requirement. The rule states:

> **15A NCAC 02D .0516 SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES**
>
> (a) Emission of sulfur dioxide from any source of combustion discharged from any vent, stack, or chimney shall not exceed 2.3 pounds of sulfur dioxide per million BTU input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. Sulfur dioxide formed or reduced as a result of treating flue gases with sulfur trioxide or other materials shall also be accounted for when determining compliance with this standard.

Contrary to the DAQ's interpretation, rule 2D.0516 applies to "*any* source of combustion" (emphasis added). The rule includes no limits or restrictions as to the source or sources of fuels used in the combustion process. Also, contrary to the DAQ's interpretation, the rule does not prohibit the use of fuels purchased offsite or from a utility to achieve compliance with the rule.

Rule 2D.0516 specifically states "$SO_2$ formed by the combustion of sulfur in fuels…. shall be included when determining compliance with this standard." Since natural gas contains

sulfur when it is combusted the emissions are subject to regulation by the rule.[35] The use of natural gas, propane gas, product gas or biogas are included in "fuels" and thus the associated BTU input "shall" be included in determining compliance with 2D.0516 consistent with the express language of the rule. The DAQ's permit review document acknowledged this concept when DAQ explicitly changed the initial draft air permit to include the contribution of natural gas, used at that time as pilot fuel for the flare, to calculate the heat input to the flare and the heat content of the "fuels" combusted.[36] The final permit issued to Optima includes all potential sources of sulfur containing fuels, including natural gas, in calculating the heat input and heating value of the fuels to determine compliance with the rule.[37]

The DAQ's position that the "BTU input" referenced in the rule must be "BTU input associated with the combustion of the gas stream associated with the Facility's *normal operations*"[38] (emphasis added) is not a requirement of rule 2D.0516. The rule broadly applies to any source of combustion that results in sulfur dioxide emissions, but does not establish any criteria for the source of the material being combusted or proscribe the use of a BTU source not associated with the manufacturing process. There is no regulatory restriction on Optima substituting a different source of supplemental energy.

Further, Rule 2D .0516 does not dictate how a facility must achieve compliance with the $SO_2$ emission limit – only that any source of combustion discharged from any vent, stack, or chimney shall not exceed 2.3 pounds of $SO_2$ per million BTU input, and that $SO_2$ formed by the combustion of sulfur in *fuels* or *other substances* - which includes natural gas - shall be included when determining compliance with this rule. Additionally, there are no other air quality regulations (state or federal) applicable to Optima limiting $SO_2$ emissions or that require application of specific control technologies, like sulfur removal as requested by the DAQ.[39]

2. DAQ's interpretation of Rule 2D.0516 applied to Optima is inconsistent with previously issued permits.

Contrary to the DAQ's position, the DAQ has previously permitted the use of natural gas as supplemental fuel for the combustion of low-BTU tail gas in the flare of another larger RNG

[35] EPA has published an $SO_2$ emission factor in AP-42 Section 1.4 which equals 0.06 lb/MM scf.
[36] Ex. 4, Air Permit Review at p.22.
[37] Ex. 5 at pp. 2-5.
[38] Ex. 7, June 29, 2021 DAQ letter to Optima's counsel.
[39] Ex. 10, Sept. 17, 2021 DAQ letter at p.2.

facility to raise the temperature and efficiently oxidize the tail gas constituents which resulted in compliance with Rule 2D .0516.[40] Unlike Optima, DAQ did not require that RNG operation to use biogas from its process as supplemental fuel in order to calculate the "BTU" input for 2D.0516.

The DAQ attempts to distinguish the other RNG facility from Optima by stating the "Align RNG has elected to utilize sulfur control technology to comply with 2D .0516." [41] The DAQ's statement is misleadingly incomplete and fails to include a description of the purpose for the use of natural gas as supplemental fuel at the Align RNG facility and the purpose of installing the sulfur control technology. The uncontrolled potential $SO_2$ emissions under the Align Normal Operating scenario (same scenario as Optima) is 197.18 tons per year without the use of controls. This is because only 77 percent of the tail gas is treated with the sulfur control technology and the treatment efficiency of the $H_2S$ in the tail gas is 76.85%. While some of the $H_2S$ is removed from the tail gas as a result of the $H_2S$ control technology, the remaining $H_2S$ in the tail gas must be oxidized in the flare and results in the emission of 45.68 tons of $SO_2$. [42] The Align permit application at page 13 states "[d]ue to the low heating value of the tail gas, supplemental conventional natural gas from the existing pipeline will be combusted in the flare to raise the temperature and efficiently oxidize the tail gas constituents."[43] Prior to proposing the installation of sulfur control technology, Align proposed to use supplemental natural gas in its flare. Initially, the DAQ took the same position with Align that it is taking with Optima that "the "BTU input" referenced in the rule refers to the BTU input associated with combustion of the waste gas stream being generated by your facility and not an increase in BTUs generated to artificially lower the $SO_2$ emission rate per million BTU."[44] The DAQ subsequently allowed the use of supplemental natural gas in Align's flare in the air permit issued on January 6, 2021. The DAQ-issued permit stated that "[d]aily SO2 emissions for natural gas combustion (supplemental fuel) during normal operation will be calculated" using an equation using the natural gas flow.[45] The DAQ

[40] Ex. 12, January 2021Air Permit Align RNG - BF Grady Road, p. 9 and p. 10 ($SO_2$ emissions will result from the combustion of tail gas and the combustion of natural gas as supplemental fuel in the enclosed hybrid flare). The use of the sulfur control technology reduces the potential $SO_2$ emissions to less than the 100 tons per year threshold for Title V permitting. *Id.* at page 6.
[41] Ex. 10.
[42] Ex. 15, Jan. 5, 2021 DAQ Application Review Align RNG – BF Grady Road, pp.9-10.
[43] Ex. 13 Feb. 26, 2020 Align BF Grady Road, Air Quality Permit Application at p. 13.
[44] Ex. 14, Jan. 17, 2020 DAQ Letter to Align RNG, LLC – BF Grady Road.
[45] Ex. 12, Align Air Permit at page 9; *see also* page 10 (off-spec operations, $SO_2$ emissions will result from the combustion of tail gas and the combustion of natural gas as supplemental fuel in the enclosed hybrid flare.)

was aware that supplemental natural gas was allowed for oxidation at the Align RNG facility at the time Optima first advised the DAQ on May 25, 2021 that it would not be able to use biogas as a supplemental fuel. DAQ should be estopped from enforcing its position that 2D.0516 does not allow the use of supplemental fuel, including natural gas, to oxidize tail gas and achieve compliance with the rule.

3. DAQ's Stated Purpose of the Rule is Not Correct

The DAQ also claims Optima's approach does not reduce the "mass emission rate of $SO_2$", needlessly wastes fuel, and increases the emission of other pollutants, and is "therefore, contrary to the purpose of the rule [to reduce pollution]."[46] These allegations are incorrect. The purpose of 2D.0516, as set out in 15A NCAC 2D .0502, is to establish maximum limits on the *rate of $SO_2$ emissions* into the atmosphere. Optima's proposal to use natural gas and a small portion of product gas as a supplemental fuel to oxidize the tail gas achieves the purpose of the rule by meeting the maximum rate of emissions established in 2D.0516. Additionally, as Optima explained in its July 28, 2021 letter to the DAQ, Optima's use of natural gas as supplemental fuel instead of a biogas slipstream decreases the $SO_2$ emission rate because the natural gas lacks $H_2S$ that is contained in the biogas slipstream.[47]

The promulgated purpose of the rule is to establish a maximum limit of $SO_2$ pounds per MMBTU heat input and does not address $SO_2$ mass emission rate or other pollutants contained in the tail gas. Regardless, as explained in its July 28, 2021 letter to the DAQ, Optima's substitution of supplemental fuels including natural gas and product gas does not increase emissions above the levels resulting from the use of supplemental biogas which was approved by the DAQ.[48]

4. Other Conflicts Or Inconsistencies in DAQ Application/Interpretation

Ms. Heather Carter, DAQ Fayetteville Regional Supervisor, also suggests to Optima that burning "raw biogas" or a "waste gas" that was previously "combusted in a flare at the Smithfield" facility is "not equivalent to the purchase of natural gas" as a supplemental fuel –

[46] Ex. 7. DAQ also initially took this same position with Align, See Ex. 14 at p. 2 (January 17, 2020 letter to Align).
[47] Ex. 6, July 28, 2021 Optima Notice for Updating Information in Permit Application.
[48] Ex. 6, July 28, 2021 Optima Notice for Updating Information in Permit Application.

implying natural gas is more valuable than biogas.[49] This statement demonstrates that the DAQ does not understand that biogas is a valuable feedstock and the objective of an RNG operation is to recover the maximum amount of methane from the biogas as product for reuse. Maximizing methane recovery for RNG is the purpose of a RNG facility in order to provide renewable gas for our state, lower greenhouse gas emissions, and meet the federal and state demands for renewable energy. The DAQ is exceeding its authority in dictating the source and kind of supplemental fuel Optima may use to fuel the flare, and specifically how Optima must use its valuable biogas.

Ms. Carter also states, "It remains the DAQ's position, however, that burning natural gas for the *sole* purpose of artificially raising the heat input of gas stream being combusted by the flare is *not authorized* by Optima' s current permit and is not a permissible means of complying with 2D .0516." Ex. 10. This interpretation is inconsistent with Optima's permit application, the DAQ permit review documents, and the permit issued to Optima. The permit application submitted by Optima clearly states that the tail gas has a low-BTU value and the supplemental fuel biogas was being sent to the flare "to increase the heating value of the flared gas to enhance tail gas combustion ***and*** comply with the State's limits with respect to the rate of emission of sulfur dioxide ($SO_2$) per unit heat input (MMBtu) of the emission source." Ex. 1 at p.2. The DAQ's air permit review document acknowledged the low-BTU of tail gas and the need for supplemental fuel for oxidation and to comply with 2D.0516.[50] The DAQ authorized a slip stream of biogas for use as supplemental fuel and authorized natural gas, as a pilot fuel, ***both*** being counted toward the heat input for compliance with the rule. [51] Optima is only proposing to increase the usage of natural gas, an approved energy source already, as a substitute for another approved energy source that is no longer viable, the slip stream of biogas, which will not result in an increase in emissions. The DAQ approved the use of supplemental fuel biogas; therefore since the rule does not prevent the use of natural gas as a supplemental fuel, the DAQ should approve other sources of supplemental fuel for this purpose as well.

### (C) HOW OPTIMA IS AGGRIEVED BY THE RULE OR STATUTE OR ITS POTENTIAL APPLICATION

[49] Ex. 10
[50] Ex. 4, DAQ Air Permit Review at pp. 3-4.
[51] *Id.* at 21-22; Ex.5, Air Permit at pp. 1-5

Optima is entitled to seek a declaratory ruling because Optima is a "person aggrieved" under N.C. Gen. Stat. 150B-4. N.C.G.S. § 150B-2(6) provides that a "person aggrieved means any person or group of persons of common interest directly or indirectly affected substantially in his or its person, property, or employment by an administrative decision."

Optima is directly affected substantially because DAQ's application/interpretation of Rule 2D.0216 imposes restrictions not contained in the rule –or elsewhere-- pertaining to *how* the facility achieves compliance with the limit specified in the rule for $SO_2$ emissions. Specifically, the DAQ application/interpretation of the rule does not allow the use of natural gas purchased from a utility as supplemental fuel at the Optima RNG facility.

Optima's only technically and economically feasible option to comply with 2D.0516 is to use supplemental fuel in the form of natural gas along with potentially a small amount of product gas. To operate in the manner dictated by the DAQ will require Optima to re-design process operations, significantly increase the capital and operating and maintenance costs for the RNG facility, and adversely impact the financial viability of the RNG facility. Further, use of natural gas as supplemental fuel for flares is a common practice and DAQ has permitted the use of natural gas at a larger similar facility.

DAQ acknowledged and agreed that Optima's original permit application included use of raw biogas as a supplemental fuel, and concurred with its use under the current permit. The DAQ's interpretation that 2D.0516 does not allow the use of natural gas purchased from a utility as supplemental fuel substantially impacts Optima's production process. Essentially, the DAQ position in its September 17, 2021 letter mandates the *source* of the supplemental fuel. The Rule contains no such restriction; it only mandates the inclusion of all fuel sources in calculations of compliance.

Additionally, the DAQ is holding the completeness determination of Optima's Title V air permit application hostage unless Optima agrees to either use biogas or install a sulfur removal system. Optima has reviewed the use of biogas as a supplemental fuel and the installation of sulfur removal technology and determined that the use of biogas and sulfur removal technology is not economically reasonable or feasible given the impact on the viability of the project and the increased capital and operating and maintenance expenses.[52]

[52] Ex. 6 at p. 4.

Finally, the DAQ is aware that use of sulfur removal technology would not eliminate the necessity to utilize supplemental fuel in the flare to oxidize the $H_2S$, and previously authorized the use of purchased natural gas for that purpose at a larger and similar facility.[53]

The DAQ interpretation of Rule 2D.0516 is inconsistent with the purpose of the rule, the language of the rule as adopted by the Commission, and with other permitting decisions related to implementation of the rule for a larger RNG facility. The inconsistent application/interpretation of the rule by DAQ imposes restrictions on Optima's operational process, with significant economic consequences that alter the productivity and potential viability of the facility.

**(V) A statement of the consequences of a failure to issue a declaratory ruling in favor of the petitioner.**

Optima can no longer use biogas by-passing the GUS as a supplemental fuel due to its material damage to the GUS processing equipment. Optima's only current feasible option is to use a different supplemental fuel – mainly natural gas. The direct flaring of biogas, as being dictated by the DAQ, negates the entire goal and need of the RNG operation itself by literally lighting Optima's only commercial product on fire.

If the Commission fails to issue a declaratory ruling in favor of Optima, Optima cannot feasibly comply with the 2D.0516 condition in its existing permit that requires the use of biogas in the flare, nor receive a completeness determination to move forward with its required Title V air permit application. Additionally, compliance with the DAQ's interpretation of 2D.0516 will impose a significant and unnecessary economic hardship on Optima without environmental benefit and may result in the termination of the project due to these increased costs.

**(VI) Draft of Proposed Ruling**

Pursuant to N.C. Gen. Stat. 150B-4(a) and 15A NCAC 2I.0602, Optima respectfully requests the Commission issue the following rulings:

(a) 15A NCAC 2D.0516(a) does not prohibit the use of supplemental fuels, including natural gas purchased from a utility, to increase the heating value of flared waste biogas to enhance oxidation and to endeavor compliance with 2D.0516.

[53] See *infra* fn. 40.

(b) Optima is allowed to use supplemental fuels, including natural gas purchased from a utility, to increase the heating value of the tail gas in its candlestick flare to enhance oxidation and ensure compliance with 2D.0516.

**(VII) Request for Oral Argument**

Optima respectfully request an oral argument given the complexities of this matter, the severe financial consequences resulting for the DAQ interpretation of the rule and to answer questions from the Commission efficiently.

Respectfully submitted this 29th day of September, 2021.

Respectfully submitted,

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**List of Exhibits for Optima's Petition for Declaratory Ruling**

Ex. 1, Optima's Initial 2020 Air Quality Permit Application

Ex. 2, May 25, 2021 Optima Letter to DAQ

Ex. 3, July 30, 2021 Optima Title V Air Permit Application

Ex. 4, February 25, 2021 DAQ Air Permit Application Review for Optima

Ex. 5, Air Permit No. 10673R00 issued to Optima TH, May 4, 2021

Ex. 6, July 28, 2021 Optima Notice for Updating Information in Permit Application

Ex. 7, June 29, 2021 DAQ Letter to Optima Counsel

Ex. 8, August 19, 2021 DAQ Signed Incomplete Letter to Optima (deemed modification)

Ex. 9, August 27, 2021 Follow up from Call on DAQ Incompleteness Determination – Optima TH – Application No. 0900096.21A

Ex. 10, September 17, 2021 DAQ Response to Facility Compliance and Permitting Questions Optima TH 0900096

Ex. 11, DAQ Instructions for 2Q.0318 – Changes Not Requiring Permit Revisions

Ex. 12, January 2021 Air Permit No. 10644R00 for Align RNG BF Grady Road

Ex. 13, February 26, 2020 Align RNG - BF Grady Road Air Quality Permit Application

Ex. 14, January 17, 2020 DAQ Letter to Align RNG – BF Grady Road

Ex. 15, January 5,2021 DAQ Application Review Align RNG - BF Grady Road

## CERTIFICATE OF SERVICE

I hereby certify that on September 29, 2021, I caused a copy of the foregoing, Requests for Declaratory Rulings, to be served by e-mail as follows:

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