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May 25, 2021

Rule of Evidence 408 - FOR SETTLEMENT PURPOSES ONLY

Via Email: michael.abraczinskas@ncdenr.gov

Michael A. Abraczinskas
Director Division of Air Quality
N.C. Department of Environmental Quality

Re: Air Permit No. 10673R00
Optima TH
Tar Heel, Bladen County, NC
Permit Class: Title V
Facility ID #0900096

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Dear Mr. Abraczinskas:

This law firm represents Optima TH, LLC ("Optima") with respect to the above referenced air permit issued to Optima by the N.C. Division of Air Quality (NCAQ) on May 4, 2021 (the Air Permit). Due to Optima's concerns related to its disagreement on the applicability of 2D.0516 for the operation of the candlestick flare (CD-1) in the Air Permit, Optima requests pursuant to N.C.G.S. 150B-22 the opportunity to informally discuss Optima's concerns over conditions in the pending Air Permit, and Optima's alternative of eliminating the use of the flare and the need for a Title V air permit.

Optima's Current Operation

Optima's renewable natural gas ("RNG") operation takes the existing biogas from Smithfield's Tar Heel wastewater treatment facility and separates the methane gas from the biogas into RNG that is injected into an existing natural gas pipeline. Use of this methane for RNG reduces green house gas ("GHG") emissions within the State and, additively, offsets use of imported geologic natural gas. This RNG operation directly supports Governor Cooper's Executive Order 80 and the NCDEQ's Clean Energy Plan developed for EO 80. In particular, the NCDEQ's Clean Energy Plan states that RNG can play an important role in reducing methane emissions, a potent GHG with global warming potential 25 times greater than carbon dioxide.[1]

The NCDEQ's Clean Energy Plan further states, "The RNG industry is young and can help our state realize the benefits of decreased carbon emissions, improved resiliency (through alternative fuel supply and microgrid applications during disaster), less reliance on imported energy fuels or sources that are weather dependent, and economic development in the most impoverished areas of the state."[2]

[1] NCDEQ Clean Energy Plan (October 2019) at page 26.
[2] *Id.* at 27.

Optima's gas upgrading system ("GUS") (ES-1 in the Air Permit) generates two gas streams – methane gas, as RNG that is injected into the natural gas pipeline infrastructure per specification approved by the NC Utilities Commission, and a small amount of non-methane gas or "tail gas" that cannot be accepted into the utility pipeline. A candlestick flare, about 20 feet tall, is used as a control device to oxidize the tail gas. Other than this normal operation of the system, there are a few, infrequent times when the candlestick flare may be used to combust raw biogas during times when the upgrading system's operation is temporarily down for maintenance and/or repairs or unexpected events (a "bypass event"), or during facility startup and when the RNG does not meet pipeline specifications (an "off spec event"). *See* NCDAQ Air Permit Application Review at pages 3-4. The purpose of the flare is a control device. The flare oxidizing the tail gas, specifically H_2S, results in SO_2 emissions that are greater than the major source threshold requiring a federal Title V operating permit.

Optima's Concerns with the May 4, 2021 Pending Air Permit

1. Specific Condition Sulfur Dioxide Control Requirement 15A NCAC 02D.0516 does not apply given the unique circumstances of Optima's operation.

    a. Foremost, the 2D.0516 regulation, on its face, does not apply to the "flare" utilized by Optima as detailed in Optima's comments to the DAQ following receipt of the draft permit. Those previous comments are incorporated herein by reference. Further, the final permit issued by the DAQ classifies the flare as a control device, not an emission source. And as noted by the DAQ in its permit review, during normal operation of the system, which is conservatively 97%+ of the time as noted by the DAQ, the non-methane constituents are oxidized by the flare, not combusted. 2D.0516 does not apply to this RNG operation.

    b. Moreover, application of 2D.0516 is not necessary under the particular facts based on DAQ's air dispersion modeling. The DAQ's modeling shows the controlling 1-Hr averaging period resulting concentrations are only 22.2% of the SO_2 NAAQS (no background included).

    c. Finally, application of 2D.0516 frustrates the purpose of this renewable gas operation, Governor Cooper's Executive Order 80, the NC Clean Energy Plan and federal laws that mandate displacing fossil fuel use with RNG. To ensure compliance with 2D.0516, geologic fossil fuels must be purchased and directly combusted in the flare solely for the purpose to increase the heating value of the flared gas. This purchase of geologic fossil fuels also results in increased SO_2 emissions. Optima had contemplated using a portion of the existing biogas for this heating purpose but has learned that such an approach will irreversibly damage Optima's GUS, and it is not technically nor economically feasible. Thus, applying 2D.0516 to an RNG operation where the methane is removed by the GUS is counterintuitive because fossil fuel has to be purchased to raise the heating value in the flared gas to meet 2D.0516, and application of 2D.0516 has no consequence on the amount of SO_2 emitted. We understand the DAQ has applied 2D.0156 to landfill flare permits, but those operations are likely combusting gases with higher heat content, not low flow, low heat content tail gases. Alternatively, since the flare is a control device, if 2D.0516 were applied to the emission source (the GUS) the high energy content of the gas in the GUS would meet the requirements of 2D.0516.

2. Specific Condition 3.b. Equation 3 – Typo to be corrected by removing extra bracket and superscript 3 in bold and highlighted in the equation below:

HIh, million Btu/hr = {{(biogas flow rate, scfm) * (biogas heating value (HHV), Btu/sft^3)} + {(tail gas flow rate, scfm) * (tail gas heating value (HHV), Btu/sft^3)} + {(product gas flow rate, scfm) * (product gas heating value (HHV), Btu/sft^3)**}^{3}** + {(propane flow rate, scfm) * (propane heating value (HHV), Btu/sft^3)} + {(natural gas flow rate, scfm) * (natural gas heating value (HHV), Btu/sft^3)}} * {60 min/hr}

3. Monitoring Requirements – the monitoring requirements for the candlestick flare (CD-1) are onerous given this unique operation. The constituents involved, as indicated by the modeling, do not warrant the extensive monitoring and record keeping. Showing operation of the flare is all that is needed. Alternatively, applying 2D.0516 to the GUS would address the low flow, low heat issue and no monitoring is required. Our specific comments were included in Optima's April 4, 2021 letter to NCDAQ and are incorporated herein.

Alternative Optima Operation

Given the pending, onerous Air Permit conditions discussed above, Optima further reviewed its operation and determined that it does not need to operate the flare (CD-1) and as a result would not need an air permit. The GUS that converts the biogas to RNG separates the methane from the biogas, and the remaining amount of H_2S and CO_2 in the tail gas can be released through a vent (same height as existing flare) from the GUS. The vent would not oxidize H_2S and thus not result in any SO_2 emissions that require a Title V permit. The small amount of RNG/product gas that may on occasion be released from the GUS due to off spec gas or start up of the operation will also not require a permit. Without the flare oxidizing the RNG, the emissions will be reduced to involve CO_2, H_2S and occasionally methane. H_2S is only regulated as a North Carolina toxic air pollutant. The NCDAQ's air dispersion modeling with the flare has already demonstrated that an emission rate of 0.415 lb H_2S/hr (9.95 lb/day) is less than 1% of the H_2S AAL. Based on these results, air dispersion modeling for uncontrolled H_2S emissions from a vent (no combustion) would very likely still be well below the AAL. Accordingly, Optima would not need an air permit for this operation. Optima is reviewing odor controls for the H_2S under this scenario.

Optima TH requests an opportunity to discuss the technical details of their process and pending Air Permit. Also, we would like to discuss an agreement with the DAQ regarding the continued operation while this matter is resolved. We will follow up with an email to Mr. Mark Cuilla and look forward to discussing the matter further.

Very truly yours,

Womble Bond Dickinson (US) LLP

Susan Cooper
Attorney

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