

March 12, 2018

William F. Lane, General Counsel
Michael Abraczinskas, Director, Division of Air Quality
NC Department of Environmental Quality
Raleigh, NC 27699

Re: Chemours - Fayetteville Works - Emissions Test Report

Dear Messrs. Lane and Abraczinskas,

On behalf of Chemours, attached is the Emissions Test Report prepared for Chemours by Weston Solutions, which provides the results of stack testing conducted at the Fayetteville Works facility between January 22 and 25, 2018, for emissions to air of HFPO Dimer Acid from two stacks: (i) the Division stack, which vents emissions from the Vinyl Ethers North area, and (ii) the Polymer Processing Aid (“PPA”) stack.

We are glad to discuss the Report and any questions you may have about it. This letter will summarize three important points about the results, all of which we would be pleased to discuss further at a meeting:

- The results are compliant with the facility’s Clean Air Act permit issued by DEQ.
- The results show, together with preliminary air dispersion modeling, that the maximum annual ambient air levels for HFPO Dimer Acid in the residential areas surrounding the facility are well within safe levels, even under the State’s conservative 140 parts per trillion provisional health goal for drinking water. We describe the calculations further below, and we can discuss them in detail if that would be helpful.
- The results will be further reduced in short order. As you know, Chemours will be installing new abatement equipment by May 25, to reduce substantially the levels of HFPO Dimer Acid emissions from these stacks. We are also looking forward to meeting with you to discuss how we can move forward with the installation of major, state-of-the-art equipment that Chemours expects will capture over 99.99% of these emissions, including the timetable for the installation.

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Before addressing these points further, we want to acknowledge that the attached results indicate a higher level of air emissions of HFPO Dimer Acid than the company's prior estimates had predicted. Although, as detailed below, the levels remain compliant with the facility's permit, Chemours's focus is to obtain the most accurate information about emissions under differing operating conditions, to address concerns about whether the measured emissions create any health risk, and to reduce the emissions going forward. Accordingly, the bulk of this letter will address these matters and, as noted, we are available to meet to discuss them.

Chemours's Further Stack-Testing Program

In coordination with DAQ, Chemours is engaged in an extensive stack testing program, utilizing new methods for sampling and analysis that Chemours has been developing for this program. The Report contains the results of testing done from January 22-25, 2018. Chemours performed additional stack testing for emissions of HFPO Dimer Acid during the week of February 26, 2018, including further tests on the PPA stack and tests on the Vinyl Ethers South stack. Chemours will provide these results once they are received. During the week of March 19, 2018, Chemours will be performing further stack testing for emissions of HFPO Dimer Acid from the IXM Polymers, Division and Semi-Works stacks, and will likewise provide those results once received. After that, Chemours plans, in consultation with DAQ, to commence stack testing for compounds beyond HFPO Dimer Acid. Chemours will use the results it obtains to understand as well as possible the extent and sources of its current emissions, as it works to install additional controls as soon as possible, and will discuss them with DAQ.

The Results Show that Chemours is in Compliance with its Clean Air Act Permit

The comprehensive permit governing all air emissions at Fayetteville Works, including from the Division and PPA stacks, is Clean Air Act Title V Air Quality Permit No. 03735T43, issued by DAQ on December 14, 2016, and effective from December 14, 2016 until March 31, 2021. This permit authorizes "the construction and operation of the emission source(s) and associated air pollution control device(s) specified [therein]," in accordance with the permit terms, conditions, and limitations.

Under the permit, there are no emissions limits for HFPO Dimer Acid or Dimer Acid Fluoride ("DAF") as individual pollutants, as those chemical species are not regulated as such under the Clean Air Act. Rather, these compounds fall within the category of volatile organic compounds ("VOCs"). There are permit limits for total

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VOCs for various plant processes, including a limit of 68.9 tons of VOCs per consecutive 12-month period for the Vinyl Ethers North process. There is no VOC limit for the PPA stack.

For the Division stack, which vents emissions from the Vinyl Ethers North process, the January 2018 stack test results measured an emissions rate equivalent to 1,257 pounds per year of HFPO Dimer Acid, or 0.6 tons.¹ While this was higher than Chemours's original 2016 Annual Emission Inventory Report (which had estimated emissions of DAF, which can transform in air to HFPO Dimer Acid, at 35 pounds per year and the revised estimate submitted last year of 563 pounds of DAF per year), it is nonetheless far below the permit limits. The permit allows total emissions of 68.9 tons of VOCs per consecutive 12-month period from the Vinyl Ethers North process. As Chemours's 2016 revised reported VOCs emissions from this process were just 16.8 tons per year, even with an additional 0.35 tons (1,257 pounds less 563 pounds) of emissions, Chemours's VOCs emissions are approximately 25% of what the permit allows.

The Results Are Well within the State's Provisional Health Goal for HFPO Dimer Acid

In July 2017, the State issued a provisional health goal of 140 parts per trillion ("ppt") for HFPO Dimer Acid in drinking water. As that goal was based on a 20% relative source contribution for drinking water, the goal translates to a safety level of 560 ppt from other exposure sources, including through air.²

To address potential concerns about air emissions, Chemours asked ERM, a leading expert firm, to model and calculate how the emissions results in the Report would translate into an air emissions exposure that can be compared to the State's provisional health goal. As described below, the calculation shows that the stack testing results translate into a maximum exposure on an annual average basis equivalent to 20-90 ppt in drinking water for the closest residences to the facility—well below the 140 ppt drinking water level (and even further below the 560 ppt level for sources other than drinking water).

¹ This number does not include outdoor fugitive emissions from the Vinyl Ethers North process which are not vented to the Division Stack. We estimate those emissions at 186 pounds per year.

² As Chemours has previously noted, it believes that these provisional health goals are overly conservative. But because we know the goals are important to DEQ and the community, we use them for comparison here.

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Specifically, ERM performed air dispersion modeling using the AERMOD 16216r model. EPA describes AERMOD, one of its preferred and recommended models, as follows: “The American Meteorological Society/ Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) was formed to introduce state-of-the-art modeling concepts into the EPA’s air quality models. Through AERMIC, a modeling system, AERMOD, was introduced that incorporated air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.”³

ERM used (i) five year meteorological data from both the Fayetteville and Lumberton meteorological stations, (ii) the hourly emission rates and other parameters measured during the January stack tests, and (iii) available data on hours per year of applicable operation. For the Division stack, the average emissions rate of the three runs from the January tests was used. For the PPA stack, the three runs showed great variability, with the second run over 25 times that of the first and third. Given that, ERM ran the model with two alternative assumptions: (i) the average of the first and third runs, and (ii) the average of all three runs.

Using those inputs, ERM then calculated the average annual ambient levels at nearby residences, and identified the location where that annual average was the highest (ERM used an annual average for purposes of comparison to the State’s ppt health goal, since that goal is a chronic standard based on lifetime exposure). ERM calculated a maximum annual average exposure of between 0.002 and 0.009 micrograms per cubic meter. To compare these numbers to the 140 ppt drinking water goal, ERM calculated an ambient air concentration of HFPO Dimer Acid that would provide the same intake for someone inhaling the average quantity of 20 cubic meters a day as the intake of someone drinking two liters of water a day with 140 ppt of HFPO Dimer Acid. This translates to an ambient air concentration of 0.014 micrograms per cubic meter. In other words:

- A standard of 140 ppt in drinking water is equivalent to 0.014 micrograms per cubic meter in air.
- The calculated ambient air levels of between 0.002 and 0.009 micrograms per cubic meter are thus equivalent to levels of 20 to 90 ppt in drinking water, well below the provisional health goal.

We would welcome the opportunity to discuss these results with you in Raleigh, and to explain why we believe the results are very conservative. Moreover, Chemours will have ERM run the model again once the February stack test results are available, as

³ <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models>.

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those tests were intended to further define the variability in the PPA stack results.⁴ We would also welcome the opportunity to review and discuss with you the air modeling results which we understand DEQ has developed.

Chemours is Moving Expediently to Substantially Reduce HFPO Dimer Acid Emissions

Finally, Chemours is also moving expeditiously to substantially reduce air emissions.

First, as previously communicated, Chemours will install granulated activated carbon adsorption systems by May 25, 2018 to control HFPO Dimer Acid and other PFAS emissions from the Division and PPA stacks. The carbon system at the PPA facility is being designed to control both emissions from indoor leaks as well as from the facility scrubber; the Vinyl Ethers North facility carbon system will capture and control indoor leak emissions. The carbon units, which are being installed on an extremely compressed schedule with approval by DAQ on a pilot basis, are expected to substantially reduce ongoing air emissions from the facility in the interim until a more comprehensive abatement system can be installed. We expect that these upgrades alone will reduce the 20-90 ppt range mentioned above to a significantly lower range of 20-30 ppt. Chemours is also considering two short term options to reduce emissions from the Vinyl Ethers North scrubber, one involving installation of a carbon adsorption system and the other involving upgrades to the existing scrubber, and it will continue to keep DAQ informed of its progress on these efforts.

Moreover, we look forward to continuing our discussions toward the installation of a state-of-the-art abatement technology that is expected to be at least 99.99% effective for controlling air emissions of HFPO Dimer Acid and other PFAS compounds. When we next meet, we will be prepared to discuss several new ideas we have regarding the timetable by which that technology would be installed.

Please let me know if you have any questions. As noted above, we would welcome the opportunity to discuss further with you the stack testing results, the modeling we have had done, and Chemours's commitments to continue to abate air

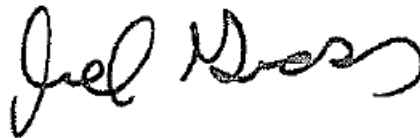
⁴ Because of this variability, and the pendency of the additional February stack tests, we are not providing DEQ with estimated annual emissions from the PPA stack, as we have for the Division stack, but will do so once the results from the February tests are available.

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emissions from Fayetteville Works. We hope we can arrange a time for a meeting in Raleigh to discuss these issues in the coming days.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel M. Gross". The signature is written in a cursive, flowing style.

Joel M. Gross

Cc:

Sheila Holman, Deputy Secretary, DEQ

Michael Pjetraj, Deputy Director, DAQ

Francisco Benzoni, Office of the Attorney General

Asher Spiller, Office of the Attorney General

Sheryl Telford, Chemours

John F. Savarese, Wachtell, Lipton, Rosen & Katz

Jeffrey M. Wintner, Wachtell, Lipton, Rosen & Katz

R. Steven DeGeorge, Robinson Bradshaw