

Appendix F-4a

NC's Response to MANE-VU Comments on NC's Pre-hearing Draft RH SIP

This page intentionally left blank.

ROY COOPER

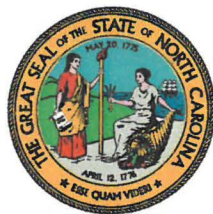
Governor

ELIZABETH S. BISER

Secretary

MICHAEL ABRACZINSKAS

Director



NORTH CAROLINA
Environmental Quality

March 2, 2022

Sharon Davis, New Jersey Department of Environmental Protection
David Healy, New Hampshire Department of Environmental Services
MANE-VU Technical Support Committee
Mid-Atlantic/Northeast Visibility Union
89 South Street, Suite 602
Boston, MA 02111

Subject: Response to Comments on North Carolina's Pre-Hearing Draft Regional Haze State Implementation Plan (SIP) for North Carolina Class I Areas for the Second Planning Period (2019-2028), August 30, 2021

Dear Ms. Davis:

Thank you for your letter dated October 12, 2021, providing comments on *North Carolina's Pre-Hearing Draft Regional Haze State Implementation Plan (SIP) for North Carolina Class I Areas for the Second Planning Period (2019-2028)*. This letter provides responses to your comments.

I. Response to New Jersey Comments on North Carolina's Draft Regional Haze SIP

I am pleased that you recognize that North Carolina's SIP addresses "emission management" strategies #1, #4, and #5 identified in the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Inter-Regional Planning Organization (RPO) Ask, and that MANE-VU has determined that North Carolina does not have any emissions sources with a ≥ 3.0 inverse megameter (Mm^{-1}) impact at MANE-VU Class I areas (strategy #2). You provided the following comment regarding adoption of an ultra-low sulfur fuel (ULSF) oil standard.

"Emission Management Strategy #3: Ultra-low sulfur fuel oil standard

North Carolina did not address this MANE-VU Ask. North Carolina should adopt an ultra-low fuel oil standard consistent with the MANE-VU Ask as part of its long-term strategy (LTS) or demonstrate in its SIP why it would not be reasonable to do so. For distillate oil, this would be essentially the equivalent of on-road diesel, which is already widely available. It should be noted that all MANE-VU states have successfully adopted low sulfur fuel oil standards."

For emission management strategy #3, the Inter-RPO Ask states that:

"States should pursue an ultra-low sulfur fuel oil standard similar to the one adopted by MANE-VU states in 2007 as expeditiously as possible and before 2028, depending on supply availability, where the standards are as follows:

- a. distillate oil to 0.0015% sulfur by weight (15 ppm),*
- b. #4 residual oil to 0.5% sulfur by weight,*
- c. #6 residual oil to 0.5% sulfur by weight."*



North Carolina Department of Environmental Quality | Division of Air Quality
217 West Jones Street | 1641 Mail Service Center | Raleigh, North Carolina 27699-1641
919.707.8400

The North Carolina Division of Air Quality (DAQ) has reviewed this request and evaluated residual and distillate oil use in the state. Based on this evaluation, North Carolina concludes that adopting an ULSF standard would yield very little reduction in sulfur dioxide (SO₂) emissions or any noticeable improvement in visibility in Class I areas in North Carolina and in downwind states for the following reasons:

- Residual oil sales in North Carolina for 2019 were very low in comparison to distillate oil. The only uses for this fuel are industrial and large marine vessel bunkering. From 2005 through 2019, overall residual oil usage has been in sharp decline, particularly in the industrial sector where usage has dropped 98%.¹ Residual oil usage in North Carolina is less than 2% of that of the MANE-VU region.²
- Distillate oil sales in North Carolina have been relatively steady from 2014-2019, and ULSF for highway and off-highway use make up the majority of the distillate oil used in North Carolina.³ When considering distillate oil usage aside from highway and off-highway transportation (which is already using ULSF), North Carolina uses roughly 5% of the amount used by the MANE-VU region and less than 4% of all non-transportation distillate oil on the East Coast.⁴
- Residential heating oil use in North Carolina has never been considerable, and it has continued to decline over time.⁵ Less than 3% of homes in North Carolina are heated with oil, as of 2019.⁶ The U.S. Energy Information Administration (EIA) data for 2019 shows that 86% of residential heating oil in the United States is consumed by states within the MANE-VU RPO.⁷

As such, it is completely reasonable to include a requirement in the Intra-RPO Ask for the MANE-VU states to restrict the sulfur content in fuel oil sales. However, to extend this requirement to an Inter-RPO Ask of North Carolina where the use of residual and distillate oil is significantly lower relative to the use of these fuels in the MANE-VU states is not reasonable. In addition, as shown in Table 1, ULSF already makes up 95-98% of the distillate oil supplied to the east coast in 2019 and 2020, the latest year for which data are available. This percentage has been above 85% since 2015 and is trending toward 100%.⁸ Based on this information and the continued trend toward the use of ULSF, the DAQ concludes that adopting an ULSF standard for North Carolina will not provide any additional SO₂ emission reductions above and beyond what would occur in the absence of a standard.

Table 1. Distillate Fuel Oil Supplied to East Coast by Sulfur Content, Past 10 Years

| Year | Total Distillate Fuel Oil Thousand Barrels | 0 to 15 ppm Sulfur Thousand Barrels (% of Total) | 15 to 500 ppm Sulfur Thousand Barrels* (% of Total) | Greater Than 500 ppm Sulfur Thousand Barrels (% of Total) |
|-------------|---|---|--|--|
| 2011 | 421,189 | 310,672 (73.8%) | -1,480 (-0.4%) | 111,997 (26.6%) |
| 2012 | 396,682 | 309,666 (78.1%) | -2,348 (-0.6%) | 89,364 (22.5%) |
| 2013 | 430,636 | 342,427 (79.5%) | -2,064 (-0.5%) | 90,273 (21.0%) |
| 2014 | 453,617 | 380,239 (83.8%) | 1,820 (0.4%) | 71,558 (15.8%) |

¹ https://www.eia.gov/dnav/pet/pet_cons_821rsda_dc_u_SNC_a.htm

² https://www.eia.gov/dnav/pet/pet_cons_821rsda_a_EPPR_VAA_Mgal_a.htm

³ https://www.eia.gov/dnav/pet/pet_cons_821dst_dc_u_SNC_a.htm

⁴ https://www.eia.gov/dnav/pet/pet_cons_821dsta_a_EPD0_VAA_Mgal_a.htm

⁵ https://www.eia.gov/dnav/pet/pet_cons_821use_dc_u_SNC_a.htm

⁶ <https://www.eia.gov/state/print.php?sid=NC>

⁷ <https://www.eia.gov/energyexplained/heating-oil/use-of-heating-oil.php>

⁸ https://www.eia.gov/dnav/pet/pet_cons_psup_dc_r10_mbb1_a.htm

| Year | Total Distillate Fuel Oil Thousand Barrels | 0 to 15 ppm Sulfur Thousand Barrels (% of Total) | 15 to 500 ppm Sulfur Thousand Barrels* (% of Total) | Greater Than 500 ppm Sulfur Thousand Barrels (% of Total) |
|------|--|--|---|---|
| 2015 | 452,928 | 395,670 (87.4%) | 3,467 (0.8%) | 53,792 (11.9%) |
| 2016 | 430,349 | 378,159 (87.9%) | 3,194 (0.7%) | 48,996 (11.4%) |
| 2017 | 435,768 | 382,973 (87.9%) | 2,645 (0.6%) | 50,150 (11.5%) |
| 2018 | 461,109 | 426,126 (92.4%) | 7,353 (1.6%) | 27,630 (6.0%) |
| 2019 | 452,565 | 431,424 (95.3%) | 1,660 (0.4%) | 19,481 (4.3%) |
| 2020 | 425,050 | 415,098 (97.7%) | 450 (0.1%) | 9,502 (2.2%) |

* Amounts shown are net volumes supplied to the region. Negative values represent years when various factors, including exports, have resulted in net negative volumes supplied.

II. Clarification of MANE-VU Inter-RPO Ask

In Appendix W of New Hampshire’s draft 2021 SIP, New Hampshire provides responses to my December 20, 2019, comments on the initial proposal of the *New Hampshire Regional Haze Plan, Periodic Comprehensive Revision, DRAFT 10-31-2019*. In its responses to state comments, New Hampshire provided the following clarification regarding the intent of the Inter-RPO Ask:

“The Ask does not tell states they must adopt anything, but instead asks them to review emissions reducing measures identified by MANE-VU states as being reasonable for many of their own emission sources. This is intended to be a starting point in the technical analysis for upwind state’s SIPs. Based on the state’s own analysis, they will either determine that some or all of the Ask measures are reasonable and adopt them, or they won’t. NHDES is not telling any state what they must adopt in their SIPs, but is rather asking them to analyze these measures.”⁹

I appreciate New Hampshire providing this clarification on the intent of the Inter-RPO Ask. As such, with this and previous comment letters I submitted to MANE-VU, New Hampshire, and New Jersey, North Carolina has provided a complete response to the MANE-VU Inter-RPO Ask by (1) participating in the MANE-VU consultation process and providing data to MANE-VU to improve its analysis of North Carolina emissions sources;¹⁰ (2) providing technical documentation of an extensive emissions and modeling analysis illustrating that it is highly unlikely that North Carolina contributes $\geq 2\%$ of the visibility impairment at any MANE-VU Class I area;^{11,12,13,14} and (3) including control measures in the

⁹ New Hampshire Regional Haze Plan Periodic Comprehensive Revision, DRAFT 12/05/2021, Appendix W, page 42 of the PDF.

¹⁰ Letter from Abraczinskas, Michael A., Director, Division of Air Quality (DAQ), North Carolina Department of Environmental Quality (NCDEQ), Raleigh, NC, to Foerter, David, Ozone Transport Commission, February 16, 2018, Subject "MANE-VU Regional Haze Consultation," response to MANE-VU Inter-RPO Ask.

¹¹ Letter from Abraczinskas, Michael A., Director, DAQ, NCDEQ, Raleigh, NC, to Steitz, Francis, Air Quality Division Director, New Jersey (NJ) Department of Environmental Protection, Trenton, NJ, Subject: "New Jersey's Proposed Regional Haze SIP (2018-2028)," October 22, 2019.

¹² Letter from Abraczinskas, Michael A., Director, DAQ, NCDEQ, Raleigh, NC, to Wright, Craig A., Director, Air Resources Division, New Hampshire (NH) Department of Environmental Services, Concord, NH, Subject: "New Hampshire's Draft Regional Haze SIP (2018-2028)," December 20, 2019.

¹³ Letter from Abraczinskas, Michael A., Director, DAQ, NCDEQ, Raleigh, NC, to Camire, Lisa, SIP Planning Analyst, Air Resources Division, NH Department of Environmental Services, Concord, NH, Subject "New Hampshire Regional Haze Plan, Periodic Comprehensive Revision, DRAFT 12/05/2021," February 23, 2022.

¹⁴ Letter from Abraczinskas, Michael A., Director, DAQ, NCDEQ, Raleigh, NC, to Davis, Sharon, Chief, Bureau of Evaluation and Planning, Division of Air Quality, Department of Environmental Protection, Trenton, NJ, Subject "Response to Comments on North Carolina’s Pre-Hearing Draft Regional Haze State Implementation Plan (SIP) for North Carolina Class I Areas for the Second Planning Period (2019-2028), August 30, 2021," March 2, 2022.

North Carolina regional haze SIP that address emission management strategies #1, #4, and #5 identified in the MANE-VU Inter-RPO Ask as applicable to North Carolina.

III. Conclusions

Based on the information provided in this and my previous 2019 letter, North Carolina has fulfilled its obligations under the MANE-VU Ask. Going forward, I would appreciate the opportunity for North Carolina and other VISTAS states to share methodologies and data during development of future regional haze SIPs with a goal to be as consistent as possible before MANE-VU states prepare an Ask of upwind states. Doing so will avoid inconsistencies between methodologies and data sets, ensure that the best data are used to support modeling and decision making, and enable states to focus on sectors and emission sources for further analysis that will benefit improvements in visibility in all Class I areas in North Carolina and MANE-VU Class I areas.

Thank you for your comments on North Carolina's pre-hearing draft SIP. I hope this response is helpful, and I look forward to continuing to work with the MANE-VU states to develop reasonable regional haze SIPs in the future. If you have any questions regarding this submittal, please contact Randy Strait of my staff at (919) 707-8721 or randy.strait@ncdenr.gov.

Sincerely,



Michael A. Abraczinskas, Director
Division of Air Quality, NCDEQ

MAA/rps

cc: Mr. Michael Pjetraj, NCDAQ
Ms. Tammy Manning, NCDAQ
Mr. Randy Strait, NCDAQ