

Attachment A

The Pennsylvania Department of Environmental Protection (DEP) has reviewed the Technical Support Document (TSD) and associated modeling data prepared by the U.S. Environmental Protection Agency (EPA) for its proposed redesignation of certain portions of Cambria and Westmoreland Counties to nonattainment for the 2010 1-hour sulfur dioxide (SO₂) National Ambient Air Quality Standard (NAAQS) pursuant to section 107 of the federal Clean Air Act, 42 U.S.C. § 7407. The DEP recommends review of the following technical issues with EPA's air dispersion modeling which could cast doubt on the characterization of ambient air quality conditions as nonattainment.

1. The EPA conducted air dispersion modeling utilizing two meteorological datasets, one that is based on vertical and lateral turbulence measurements and one that is based on the surface friction velocity adjustment (ADJ_U*) option without the turbulence measurements. Although the EPA is not endorsing the use of either meteorological dataset as the appropriate meteorological input for air dispersion modeling, the EPA's proposed revised designation is based on the modeling that utilizes the meteorological dataset that is based on the ADJ_U* option without the turbulence measurements. The EPA's modeling results indicate that SO₂ concentrations on the Laurel Ridge are ~50% higher when using the meteorological dataset that is based on the ADJ_U* option without the turbulence measurements.

The DEP believes that the EPA's modeling for portions of Cambria and Westmoreland Counties should rely solely on the meteorological dataset that is based on the vertical and lateral turbulence measurements. According to Appendix A, A.1(b)(2) of the EPA's "Guideline on Air Quality Models" (40 CFR Part 51, Appendix W), "measured profiles of wind, temperature, vertical and lateral turbulence may be required in certain applications (e.g., in complex terrain) to adequately represent the meteorology affecting plume transport and dispersion." The Laurel Ridge, where the highest concentrations occur based on the EPA's modeling, is considered complex terrain, defined in subsection 4.1(d) of the EPA's "Guideline on Air Quality Models" as "terrain exceeding the height of the stack(s) being modeled." The DEP believes it is important that atmospheric conditions be adequately characterized in complex terrain using vertical and lateral turbulence measurements. In contrast, the air dispersion modeling that was previously conducted within the Indiana, PA 2010 SO₂ nonattainment area near the Conemaugh and Seward facilities as part of the DEP's State Implementation Plan (SIP) revision did not utilize a meteorological dataset that was based on turbulence measurements because the area of maximum SO₂ impact was not in complex terrain.

2. In its air dispersion modeling, the EPA used the Strongstown monitor as the source of background SO₂ concentrations. The EPA selected the Strongstown monitor because it captures a "reasonable background concentration" due to SO₂ emissions from the Homer City and Keystone facilities, which are not explicitly included in the EPA's air dispersion modeling. However, it is very likely that the Strongstown monitor also captures SO₂ emissions from the Conemaugh and Seward facilities, which are explicitly included in the EPA's modeling. Thus, it is very likely that SO₂ impacts from the Conemaugh and Seward facilities have been "double-counted" in the EPA's modeling. The EPA did not adjust the Strongstown SO₂ measurements that could have captured the impacts from Conemaugh and Seward emissions. Representative wind direction measurements would be necessary to adjust the Strongstown SO₂ measurements to remove the "double-counting." Since the wind data collected at the Strongstown monitor did not previously

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undergo any quality assurance/quality control procedures, DEP suggests that wind measurements from the Johnstown-Cambria County Airport should be utilized. Meteorological data from this airport was previously determined to be representative of atmospheric conditions within most of the Indiana, PA 2010 SO₂ nonattainment area, including the location of the Strongstown monitor.

3. To simulate a monitor for area designation purposes, the EPA's August 2016 "SO₂ NAAQS Designation Modeling Technical Assistance Document" (SO₂ Modeling TAD) recommends the use of the most recent 3 years of emission data in the modeling. The SO₂ Modeling TAD allows for use of older emission data that are representative of current operations in the absence of recent data. The July 1, 2017 through June 30, 2020 emissions data used by the EPA in its modeling is not the latest emissions data with corresponding exit stack temperatures and velocities available to the EPA. In addition, it is probable that this emissions data may not be representative of the most recent operations at the Conemaugh and Seward facilities. During the public comment period for the EPA's proposed partial approval and partial disapproval of the DEP's Indiana, PA SO₂ SIP revision (87 FR 15166; Mar. 17, 2022), Keystone-Conemaugh Projects, LLC provided comments and associated data, dated April 18, 2022, to the EPA which included 2019 to 2021 emissions and stack exhaust parameters data used to conduct modeling in areas outside the Indiana, PA 2010 SO₂ nonattainment area.

The DEP is also concerned that 2020 emissions may not reflect normal operations at one or more facilities due to the COVID-19 pandemic. Perhaps, more recent 2022 emissions and stack exhaust parameters data, which are now available, could be used as a replacement for the 2020 data.

Additionally, the EPA included the Cambria Cogen facility among its modeled sources for Cambria County. However, as documented in the EPA's TSD, emissions from Cambria Cogen ceased after the 2nd quarter of 2019. The inclusion of Cambria Cogen, which has been closed for almost four years and whose Title V permit expired on January 4, 2021, in the air dispersion modeling seems to be inappropriate and is not representative of the emissions generated in Cambria County in the last three years.

4. The EPA's SO₂ Modeling TAD recommends the use of the actual stack height in the modeling for area designation purposes. The stack height used in the EPA's air dispersion modeling for the Seward facility was 600 feet. Representatives of the Seward facility confirmed that the actual height of Seward's stack is 604 feet. Moreover, the DEP verified that the 604-foot stack height is documented in the EPA's Field Audit Checklist Tool (FACT), version 1.6.03.

5. Based on the EPA's AERMOD input files, two hourly emission files were called in the simulation, i.e., one for the Conemaugh and Seward emission sources, and another for the Cambria County emission sources. However, according to the EPA's "User's Guide for the AMS/EPA Regulatory Model (AERMOD)" (EPA-454/B-22-007, June 2022), AERMOD currently only allows for a single hourly emission file to be used with each model run. Based on the EPA's AERMOD output files, the hourly emission file for the Cambria County emission sources was not read by the model. Instead of accounting for hourly variations in emissions, AERMOD defaulted to using the maximum hourly permitted emission rates for the Cambria County sources.