



**Maryland**  
Department of  
the Environment

Larry Hogan, Governor  
Boyd Rutherford, Lt. Governor

Ben Grumbles, Secretary  
Horacio Tablada, Deputy Secretary

***State of Maryland***  
***2020 Annual SO<sub>2</sub> Data Report***  
***for***  
***Lanyard Power Holdings, LLC, Chalk Point***  
***Generating Station &***  
***Lanyard Power Holdings, LLC, Morgantown***  
***Generating Station***  
  
**addressing the**  
**2010 1-Hour Sulfur Dioxide (SO<sub>2</sub>) NAAQS Data Requirements Rule**

**May 24, 2021**

**Prepared for:**  
**U.S. Environmental Protection Agency**

**Prepared by:**  
**Maryland Department of the Environment**





# Maryland

## Department of the Environment

Larry Hogan, Governor  
Boyd Rutherford, Lt. Governor

Ben Grumbles, Secretary  
Horacio Tablada, Deputy Secretary

---

**Maryland Department of the Environment  
2020 Annual Data Report  
For the 2010 1-Hour SO<sub>2</sub> NAAQS  
Lanyard Power Holdings, LLC (formerly GenOn Mid-Atlantic, LLC)  
Chalk Point Generating Station  
Morgantown Generating Station**

Maryland Department of the Environment  
Air and Radiation Administration  
1800 Washington Boulevard, Suite 730  
Baltimore, Maryland 21230  
Phone 410.537.3255 • Fax 410.537.4223

## Table of Contents

<b>PURPOSE.....</b>	<b>1</b>
<b>BACKGROUND .....</b>	<b>1</b>
<b>ONGOING DATA REQUIREMENTS .....</b>	<b>2</b>
1.1    MORGANTOWN GENERATING STATION.....	2
1.2    CHALK POINT GENERATING STATION .....	3
<b>TECHNICAL ANALYSIS FOR CHALK POINT GENERATING STATION.....</b>	<b>3</b>
<b>CONCLUSION .....</b>	<b>4</b>

## Purpose

The Maryland Department of the Environment Air and Radiation Administration (MDE – ARA) has prepared this report as the state’s stand-alone Annual Data Report, including data through 2020, for the 2010 1-Hour Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard (NAAQS). The report is designed to fulfill the annual reporting requirements under the U.S. Environmental Protection Agency’s (EPA) “Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard (NAAQS); Final Rule,” 80 Fed. Reg., 51052, dated August 21, 2015, as codified at 40 CFR Part 51.1205.<sup>1</sup>

## Background

The U.S. EPA promulgated a primary (health-based) national ambient air quality standard (NAAQS) for sulfur dioxide in 2010. The EPA set the standard at a level of 75 parts per billion (ppb) in ambient air (also measured as 196.4 micrograms per cubic meter, µg/m<sup>3</sup>). The standard is based on a 1-hour averaging time for the emissions of SO<sub>2</sub>.<sup>2</sup>

Under the Clean Air Act, the EPA is required to determine if areas of the country meet each new standard. First, states and tribes submit recommendations to the EPA as to whether or not an area is attaining the national ambient air quality standards. The states and tribes base these recommendations on air quality data collected from ambient air monitors at locations in urban and rural settings. The states and tribes consider other information characterizing air quality, for example, air quality dispersion modeling (computer simulations of air quality). Then, after EPA has worked with the states and tribes and considered the information from air quality monitors, and/or air quality models, EPA will "designate" an area as “unclassifiable/attainment” or “nonattainment” for the standard.

On January 9, 2018 (83 Fed. Reg. 1098), in round 3 of the SO<sub>2</sub> area designations, the EPA designated most of Maryland as “unclassifiable/attainment” for the 1-hour SO<sub>2</sub> NAAQS. This included Prince George’s County where the Lanyard Power Holdings, LLC (formerly GenOn Mid-Atlantic, LLC) Chalk Point Generating Station is located, and Charles County where the Lanyard Power Holdings, LLC (formerly GenOn Mid-Atlantic, LLC) Morgantown Generating Station is located.

EPA made the round 3 decisions based on state input, air dispersion modeling analysis,<sup>3</sup> and the background air monitoring data available at the time (2014-2016). Before the final modeling

---

<sup>1</sup> U.S. Environmental Protection Agency (August 21, 2015). Retrieved 5/13/2021 from <https://www.govinfo.gov/content/pkg/FR-2015-08-21/pdf/2015-20367.pdf>.

<sup>2</sup> U.S. Environmental Protection Agency (June 22, 2010), Primary National Ambient Air Quality Standard for Sulfur Dioxide; Final Rule, 75 Fed. Reg. 35520. Retrieved 5/13/2021 from <https://www.govinfo.gov/content/pkg/FR-2010-06-22/pdf/2010-13947.pdf>.

<sup>3</sup> U.S. Environmental Protection Agency (August 2017). Technical Support Document, Chapter 18, Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for the State of Maryland, Retrieved 5/13/2021 from [https://www.epa.gov/sites/production/files/2017-08/documents/18\\_md\\_so2\\_rd3-final.pdf](https://www.epa.gov/sites/production/files/2017-08/documents/18_md_so2_rd3-final.pdf).

reports were submitted to EPA, modeling protocols were developed to outline the procedures to follow for the final modeling analyses. The modeling protocols were developed based on relevant guidance outlined in EPA’s Modeling Technical Assistance Document (TAD)<sup>4</sup> at the time of preparation. EPA was given the opportunity to review the modeling protocol and provide comments to MDE in March 2016, resulting in a final modeling protocol used in the final modeling analysis. After careful review of the supporting documentation and all available data, EPA made the designation decisions.

## Ongoing Data Requirements

In the United States Code of Federal Regulations (CFR), 40 CFR Part 51.1205 “Ongoing Data Requirements,”<sup>5</sup> EPA states the following:

(b) *Modeled areas.* For any area where modeling of actual SO<sub>2</sub> emissions serve as the basis for designating such area as attainment for the 2010 SO<sub>2</sub> NAAQS, the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its Annual Monitoring Network Plan (also due on July 1 each year under 40 CFR 58.10), that documents the annual SO<sub>2</sub> emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year. The first report for each such area is due by July 1 of the calendar year after the effective date of the area’s initial designation.

(1) The air agency shall include in such report a recommendation regarding whether additional modeling is needed to characterize air quality in any area to determine whether the area meets or does not meet the 2010 SO<sub>2</sub> NAAQS. The EPA Regional Administrator will consider the emissions report and air agency recommendation, and may require that the air agency conduct updated air quality modeling for the area and submit it to the EPA within 12 months.

(2) An air agency will no longer be subject to the requirements of this paragraph (b) for a particular area if it provides air quality modeling demonstrating that air quality values at all receptors in the analysis are no greater than 50 percent of the 1-hour SO<sub>2</sub> NAAQS, and such demonstration is approved by the EPA Regional Administrator.

### 1.1 Morgantown Generating Station

Based on EPA’s Data Requirements Rule (40 CFR Part 51.21205), MDE is not required to submit an annual report or other data to substantiate the area’s continued compliance with the SO<sub>2</sub> NAAQS. This is due to the fact that the air quality modeling that was conducted to inform EPA’s “unclassifiable/attainment” designation for the area including the Morgantown Generating Station showed ambient SO<sub>2</sub> concentrations of **less than 50% of the SO<sub>2</sub> NAAQS**.

<sup>4</sup> U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Air Quality Assessment Division (February 2016). Draft SO<sub>2</sub> NAAQS Designations Modeling, Technical Assistance Document.

<sup>5</sup> U.S. Environmental Protection Agency (August 21, 2015), 80 Fed. Reg. 51052. Retrieved 5/13/2021 from <https://www.govinfo.gov/content/pkg/FR-2015-08-21/pdf/2015-20367.pdf>.

Also, the SO<sub>2</sub> emissions from the Morgantown Generating Station have declined substantially in the most recent years (2018-2020) since the modeling was done. In fact, the 3-year, 2012-2014, average annual emissions that modeled the area as below 50% of the SO<sub>2</sub> NAAQS was 2,603.53 tpy according to EPA's Clean Air Markets Division. In contrast, in 2018-2020, the 3-year average annual SO<sub>2</sub> emissions was 1,128.88 tpy, a 56.64% decrease in the emissions.<sup>6</sup>

The MDE Tools for Environmental Management and Protection Organizations (TEMPO)/Environmental Tracking System (ETS), a relational database management system, shows the 2020 annual emissions for the Morgantown Generating Station (Units 1-2) to be consistent with the 2020 CAMD emissions. Specifically, TEMPO/ETS showed Morgantown to have 638.9 tpy of SO<sub>2</sub> emissions in 2020 compared with the CAMD emissions of 659.10 tpy.

## 1.2 Chalk Point Generating Station

This report is focused on the ongoing annual reporting requirements for SO<sub>2</sub> emissions in the area that includes the Chalk Point Generating Station. EPA's Data Requirements Rule requires an annual SO<sub>2</sub> emissions report in areas of the state where **actual** rather than allowable (permitted) SO<sub>2</sub> emissions data served as the basis for EPA designating the area **attainment** of the 2010, 1-hour SO<sub>2</sub> NAAQS, and where the area's modeled air quality **exceeded 50 percent** of the 196.4 micrograms per cubic meter (µg/m<sup>3</sup>) 1-hour SO<sub>2</sub> NAAQS. In the state of Maryland, only one sulfur dioxide emissions source met both of these criteria: Chalk Point Generating Station in Aquasco, Prince George's County, Maryland.

## Technical Analysis for Chalk Point Generating Station

The modeling indicated that the highest predicted 99th percentile daily maximum 1-hour SO<sub>2</sub> concentration within the chosen modeling domain was 106.79 µg/m<sup>3</sup>, equivalent to 40.8 ppb. This modeled concentration included the background concentration of SO<sub>2</sub> of 28.82 µg/m<sup>3</sup>, and was based on actual emissions from the facility. The model used actual SO<sub>2</sub> emissions data from a three-year timeframe (2012-2014). The air quality modeling was conducted by AECOM for NRG, the owner of the Chalk Point Generating Station prior to the owner GenOn Mid-Atlantic, LLC, and the modeling was reviewed for accuracy by MDE and EPA Region 3.<sup>7</sup>

MDE has acquired additional emissions data from the EPA's Clean Air Market Division (CAMD) database<sup>8</sup> and confirmed the emissions data agree with data in the MDE TEMPO/ETS relational database management system. In particular, the TEMPO/ETS 2020 annual data for the Chalk Point Generating Station (Units 1-4) showed emissions of 219.95 tpy, comparable to the CAMD value of 219.90 tpy for the same time frame.

---

<sup>6</sup> U.S. Environmental Protection Agency, Clean Air Markets Division. Air Markets Program Data, Retrieved 3/1/2021 from <https://ampd.epa.gov/ampd/>.

<sup>7</sup> U.S. Environmental Protection Agency (August 2017). Technical Support Document, Chapter 18, Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for the State of Maryland, p. 28, Retrieved 5/13/2021 from [https://www.epa.gov/sites/production/files/2017-08/documents/18\\_md\\_so2\\_rd3-final.pdf](https://www.epa.gov/sites/production/files/2017-08/documents/18_md_so2_rd3-final.pdf).

<sup>8</sup> U.S. Environmental Protection Agency, Clean Air Markets Division. Air Markets Program Data, Retrieved 3/1/2021 from <https://ampd.epa.gov/ampd/>.

CHALK POINT GENERATING STATION – MORGANTOWN GENERATING STATION  
2020 ANNUAL DATA REQUIREMENTS REPORT - 2010 SO<sub>2</sub> NAAQS

Chalk Point's SO<sub>2</sub> modeled emissions for the 2012-2014 period as well as the CAMD emissions for 2015-2020 are shown below. They show continued declines in SO<sub>2</sub> emissions from the Chalk Point Generating Station. On average the annual SO<sub>2</sub> emissions decreased from 3,874 tons per year in the 2012-2014 timeframe, to 464 tons per year in the 2018-2020 timeframe.

**Table 1: Reported SO<sub>2</sub> Emissions (tpy) and Correlated SO<sub>2</sub> Model Results (µg/m<sup>3</sup>) for Chalk Point Generating Station (Units 1-4)**

	Modeled SO <sub>2</sub> Emissions (tons/year) <sup>9</sup>			SO <sub>2</sub> Reported Emissions from CAMD database (tons/year) <sup>10</sup>					
	2012	2013	2014	2015	2016	2017	2018	2019	2020
	3,633.9	4,231.1	3,756.5	1,491.60	925.55	535.76	765.94	406.15	219.90

  

	SO <sub>2</sub> Emissions Correlated to Model Results		
	2012 – 2014		2018-2020
Maximum Model Results (µg/m <sup>3</sup> )	106.79		(not applicable)
3 Year Emission Average (tons/year)	3,873.83		464.00

## Conclusion

The MDE has determined that the area continues to meet the 1-hour SO<sub>2</sub> NAAQS. No additional modeling analysis is necessary to ensure the Chalk Point Generating Station area remains consistent with the EPA's original attainment/unclassifiable designation for the modeled area.

<sup>9</sup> U.S. Environmental Protection Agency (August 2017). Technical Support Document, Chapter 18, Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for the State of Maryland, p. 36, Retrieved 3/26/2020 from [https://www.epa.gov/sites/production/files/2017-08/documents/18\\_md\\_so2\\_rd3-final.pdf](https://www.epa.gov/sites/production/files/2017-08/documents/18_md_so2_rd3-final.pdf).

<sup>10</sup> U.S. Environmental Protection Agency, Clean Air Markets Division. Air Markets Program Data, Retrieved 3/1/2021 from <https://ampd.epa.gov/ampd/>.