



PUBLIC EMPLOYEES FOR ENVIRONMENTAL RESPONSIBILITY

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RE: 2021 Annual Sulfur Dioxide (SO₂) Report as Required by the Data Requirements Rule

Dear Ms. McCarthy,

On behalf of Public Employees for Environmental Responsibility, the Center for Biological Diversity, WildEarth Guardians, Green Latinos, Mothers Out Front, 350 Colorado, Colorado Jewish Climate Action, and Colorado Sierra Club, we are writing this letter to provide comments on the proposed “2021 Annual Sulfur Dioxide (SO₂) Report as Required by the Data Requirements Rule” (The 2021 Report). We thank CDPHE for allowing the public the opportunity to review and comment on this document.

The 2021 Report cites 40 CFR Part 51, Subpart BB 51.1203, also known as the Data Requirements Rule (DRR) as the basis for the Round 2 and Round 3 1-hr SO₂ NAAQS designation process and for the ongoing requirements for some of seven coal-fired electric power plants in Colorado subject to this regulation. **The CDPHE has disregarded provisions in the DRR in the initial designation process and in the ongoing requirements for the Pawnee generating stations.**

This is an issue that we brought to CDPHE’s attention last year in a June 21, 2020 letter sent by the same eight environmental organizations when providing comments on the “2020 Annual Sulfur Dioxide (SO₂) Report as Required by the Data Requirements Rule.”¹ In that letter, we explained how the emission rate used in the SO₂ modeling of the Pawnee Power Plant, labeled by CDPHE as “allowable,” does not meet the requirements in the DRR nor the requirements to be considered an allowable emission rate.

We also brought to CDPHE’s attention the fact that Pawnee’s 2019 actual emission rates reported to EPA’s Air Markets Program Data (AMPD) repeatedly exceed the so called “allowable” emission rate used in the SO₂ modeling submitted by CDPHE to EPA, and that those actual emission rates result in modeled violations of the 1-hr SO₂ NAAQS.²

¹ Letter sent via email to cdphe.commentsapcd@state.co.us on June 21, 2020 RE: 2020 Annual Sulfur Dioxide (SO₂) Report as Required by the Data Requirements Rule and followed on February 2, 2021 with a letter to EPA requesting review and intervention, See <https://www.peer.org/call-for-federal-intervention-into-colorado-air-pollution/> and attached.

² <https://ampd.epa.gov/ampd/>

We are now providing additional, irrefutable evidence that this “allowable” emission rate used by CDPHE to model the Pawnee Power Plant does not meet legal requirements and continues to be exceeded by the power plant’s actual emissions as reported in 2020 to EPA’s AMPD, thus causing modeled violations of the 1-hr SO₂ NAAQS for two consecutive years.

I. The emission rate listed as “Modeled Emissions” in The Report for the Pawnee Power Plant is not a “federally enforceable allowable emission limit.”

The regulations require that *“Modeling analyses shall characterize air quality based on either actual SO₂ emissions from the most recent 3 years, or on any federally enforceable allowable emission limit or limits established by the air agency or the EPA and that are effective and require compliance by January 13, 2017.”*³

The allowable emissions is defined as *“...the emissions rate of a stationary source calculated using **the maximum rated capacity of the source** (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) **and** the most stringent of the following:*

(i) The applicable standards as set forth in 40 CFR parts 60 and 61;

(ii) The applicable State Implementation Plan emissions limitation, including those with a future compliance date; or

*(iii) The emissions rate specified as a federally enforceable permit condition.”*⁴

Yet none of these three criteria are applied.

Furthermore, the concept of federally enforceable is defined as *“...all limitations and conditions which are enforceable by the Administrator, including those requirements developed pursuant to 40 CFR parts 60 and 61, requirements within any applicable State implementation plan, any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR part 51, subpart I, including operating permits issued under an EPA-approved program that is incorporated into the State implementation plan and expressly requires adherence to any permit issued under such program.”*⁵

Applying the required legal definitions, the federally allowable SO₂ emission rate for the Pawnee Power Plant is the rate calculated by using the maximum rated capacity of 5,346 MMBTU/hr listed in the corresponding Title V permit for coal-fired Unit 1, and the 0.12 lb/MMBTU on a 30-day rolling average limit.⁶ This results in a federally enforceable allowable emission rate of 80.9 g/s, which is enforceable only on a 30-day rolling average period.

³ 40 CFR Part 51, Subpart BB §51.1203 (d)(2)

⁴ 40 CFR § 51.166 (b)(16) [emphasis added]

⁵ 40 CFR § 51.166 (b)(17)

⁶ Operating Permit – Public Service Company of Colorado – Pawnee Station. (Pawnee Power Plant Title V Permit), First Issued: January 1, 2013; Renewed: January 1, 2019 at p 5.

<https://www.colorado.gov/pacific/cdphe/operating-permits-company-index>

The records show that there is no hourly federally enforceable allowable SO₂ emission limit based on the maximum rated capacity of the Unit 1 boiler and the NSPS / NESHAP standards, state implementation plan limitations, or federally enforceable permit condition.

This means that there is no legal way to enforce any hourly emission rate at the Pawnee facility, including the emission rate of 131.75 g/s used in the original modeling study submitted by CDPHE to EPA. This modeled emission rate is not enforceable because it is not included in any permit, an approved State Implementation Plan, or state or federal regulation. Even if the total annual SO₂ emission rates decrease over the years, on any given hour the actual emission rate at the Pawnee facility can perfectly exceed the modeled emission rate that served as the basis for designating the Morgan County area as Attainment / Unclassifiable.

II. There is no Evidence that EPA has Approved the Adjustment Factor

In the 2021 Report, CDPHE continues to use the argument that “...*the modeling for Pawnee Generating Station used a conservative approach that included an EPA-recommended adjustment factor considered allowable, therefore the facility is not subject to the ongoing data requirement.*”⁷

We raised this issue in our comment letter last year and CDPHE has yet to provide any documentation showing that this “conservative approach” was recommended and approved by EPA, or any documentation showing that EPA actually considers the modeled emission rate of 131.75 g/s as a valid and legal federally enforceable allowable emission rate that meets the DRR’s requirements.⁸

If CDPHE had followed the appropriate course of action, EPA Region 8 would have sought concurrence from EPA's Model Clearinghouse, the EPA Headquarters Office tasked with resolving regulatory modeling issues that fall outside of the existing regulations and guidance. You can see an example of this with a June 1, 2021 update of the May 28, 2021 Model Clearinghouse review of a Stack Specific Alternative Modeling Approach for Applying Downwash in AERMOD for Ahlstrom-Munksjo in Rhinelander, Wisconsin (Wisconsin Memo) approval by the Model Clearinghouse.⁹

In this case, the Wisconsin Department of Natural Resources believed that a facility was underestimating the SO₂ emissions and wanted to correct the protocol and use different emissions rates than those required in the SO₂ DRR. So the state prepared an analysis and submitted it to the EPA Region 5 / EPA Model Clearinghouse. As EPA states in the Wisconsin Memo, “The *Guideline*, Section 3.2.2(a) requires that all alternative models are determined to be acceptable by the appropriate EPA Regional Office in consultation with the Model Clearinghouse.”

Similarly, for the Pawnee power plant, CDPHE claims that a different emission rate than the one required in the DRR was used with EPA's approval. If the correct protocol was followed, there

⁷ The 2021 Report at p. 5.

⁸ Attachment 1, 6/30/2016 EPA Region 8 Memo to CDPHE outlining the recommended 1-hr SO₂ Air Quality Modeling Protocol for Pawnee Power Plant. It does not cite the adjustment factor.

⁹ <https://cfpub.epa.gov/oarweb/MCHISRS/index.cfm?fuseaction=main.resultdetails&recnum=21-V-01>

would be a memorandum, similar to the Wisconsin Memo, from EPA's Model Clearinghouse to EPA's Region 8 Office documenting EPA's approval of the alternative emission rate.

Presumably, like the Wisconsin Memo, that memo would have been later shared with all regional offices because it sets a precedent for future cases.

On February 2, 2021 this same coalition of environmental organizations sent a letter to EPA Region 8 Office requesting a copy of this documentation. As of this date we have not received any response.

We are concerned because CDPHE continues to mislead the people of Colorado by stating that the emission rate used in the Pawnee SO₂ modeling study submitted to EPA in 2017 is a federally enforceable allowable emission rate.¹⁰ This mischaracterization results in artificially low modeled concentrations that appear to comply with the NAAQS, thus leading to the false interpretation that the Morgan County area is in attainment with the 1-hr SO₂ NAAQS.

This false narrative endangers the health of the people of Colorado and violates the letter and the intent of the Clean Air Act and the DRR.

III. EPA SO₂ Emissions Data Shows Pawnee Regularly Exceeds Emissions Limits.

EPA's AMPD collects SO₂ emissions data from the Continuous Emissions Monitoring Systems (CEMS) of the largest air polluters in the country. For the Pawnee Power Plant, the data collected by EPA from their CEMS shows that during the period of January through December of 2019, there were 149 hours during which the SO₂ emissions were above the value of the so called "allowable" emission rate of 131.75 g/s used by CDPHE's modeling. The maximum measured emission rate was of 583.08 g/s. This is over four times the allowable emission rate specified by CDPHE.

For year 2020, EPA's AMPD data shows that there were 200 hours in which CDPHE's "allowable" emission rate for this facility was exceeded, with a maximum measured emission rate of 566.67 g/s. This is also over four times the allowable emission rate specified by CDPHE.

If CDPHE's SO₂ emission rate of 131.75 g/s used in the modeling of the Pawnee Power Plant is a true federally enforceable allowable emission rate, then Pawnee has violated federal emission limits 349 times during the 2019 – 2020 period without any consequence or any action taken by CDPHE to correct that situation.

IV. Independent Modeling Proves Pawnee Violations of 1-Hr SO₂ NAAQS

To prove that it is possible for Pawnee to violate federal emission limits, our coalition of environmental groups hired an independent contractor to model the Pawnee Power Plant using the exact same modeling analysis submitted by CDPHE to EPA in 2017, which was obtained by PEER through a CORA process.¹¹

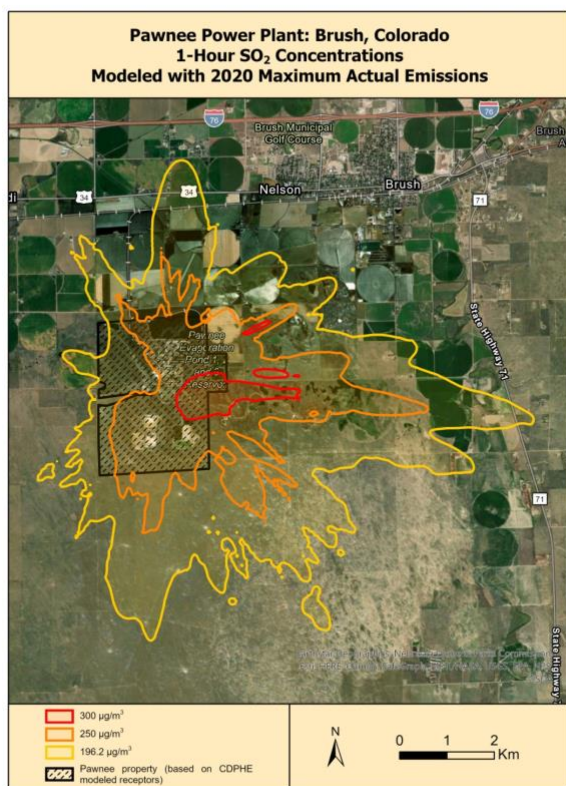
¹⁰ "1-hour SO₂ Air Quality Dispersion Modeling Analysis for Pawnee Power Plant" January 11, 2017. Colorado Department of Public Health and Environment.

¹¹ Attachment 1, 6/30/2016 EPA Region 8 Memo to CDPHE. In this memo, EPA addressed the fact that CDPHE had only one year of meteorological data available and recommended that "...allowable emissions

Without making any changes to the CDPHE modeling files other than replacing the original short-term “allowable” emission rate of 131.75 g/s with the maximum 2019 and 2020 actual emission rates of 583.08 g/s and 566.67 g/s respectively, the modeled results reveal that, based on 2019 and 2020 maximum actual emissions, Pawnee is in violation of the 1-hour SO₂ NAAQS both with and without background concentrations.

The results show 2073 events of violations of the 1-hr SO₂ NAAQS with the 2019 data and 1856 events with the 2020 data, with a maximum modeled concentration of 145.81 ppb, almost double the standard of 75 ppb.¹²

These results can be seen in the graphic below and in the attached modeling report.



will be used instead of actual emissions for Pawnee to ensure that the approach is conservative..." EPA does not mention the adjustment factor that CDPHE elected to use.

¹² One design concentration above the NAAQS qualifies as a modeled NAAQS violation. All the rest of the "events of violations" quantify how bad the problem is and demonstrate that this design concentration is not an outlier, and almost a quarter of the total (8238) modeled design concentrations exceed the NAAQS.

It is important to note that a contribution analysis of all the facilities in the area are included in the modeling. It shows that all of those events of modeled violations of the 1-hr SO₂ NAAQS are caused by the Pawnee Power Plant alone, without any significant contribution from the nearby facilities. This means that all those violations will still be there, even with the drastic SO₂ emissions reductions that took place at the Western Sugar facility, as mentioned in the 2021 Report.

These modeling results constitute irrefutable evidence that the Pawnee generating station is causing violations of the 1-hr SO₂ NAAQS and that under the procedures established in the federal Data Requirements Rule, part or all Morgan County, CO should be reclassified as a nonattainment area for this health-based air quality standard.

V. Proposed Solution -- Amend the Pawnee Permit

A straight forward solution to this nonattainment situation is to incorporate the modeled emission rate of 131.75 g/s into the facility's operating permit as an hourly SO₂ emission limit. This would establish an emission rate that is truly a federally enforceable allowable emission rate that will ensure attainment with the 1-hr SO₂ NAAQS.

The facility has SO₂ control equipment installed and EPA's AMPD shows that it is capable of keeping emissions below the modeled emission rate of 131.75 g/s. But, given that the only enforceable limit in place is the one applicable on a 30-day rolling average period, we suspect that the power plant is likely operating the controls to meet a monthly average emission rate thus allowing hourly peaks that cause the NAAQS violations.

Without a truly enforceable hourly emission limit in place, 1-hr SO₂ NAAQS violations will continue to occur at the expense of the population's health, which CDPHE should be protecting.

VI. In 2020, COVID 19 Reduced Electrical Demand

In addition to the Pawnee generating station case, the 2021 Report also mentions a decrease in SO₂ emissions during year 2020 for the Craig, Comanche and Hayden generating stations as the reasons for not pursuing any additional modeling.

In that regard is important to note that the behavior of electricity demand and consequently on emissions from power plants during year 2020 was most likely an anomaly. EPA's Clean Air Market Data shows a decrease in the heat input (i.e. coal burned) from year 2019 to 2020 for these three power plants, which means that the decrease in SO₂ emission rates is not because the power plants are cleaner, but simply because of a decrease in demand in 2020, which could have been caused by COVID 19.¹³ The key question is if the electricity demand has picked up in 2021, will the SO₂ emissions increase again?

In addition, the modeling results for the Pawnee generating station provide sufficient evidence that annual emissions trends are completely useless to protect hourly NAAQS. Even if annual emissions were to be cut by half, as long as there are hourly peaks of very high emission rates then

¹³ <https://www.epa.gov/airmarkets/facility-level-comparisons#Annual>

there will always be the potential of very high ambient air concentrations to exceed the hourly NAAQS.

Conclusion

Considering the many irregularities with the 1-hr SO₂ NAAQS designation process, which we have brought to CDPHE's attention in this letter and the one sent last year, and considering the irrefutable evidence of modeled violations of this standard caused by the Pawnee generating station, we request that CDPHE abandon the false and misleading narrative that this power plant was modeled with an allowable emission rate and that it has demonstrated compliance with the NAAQS.

CDPHE's actions on this matter are causing real harm to the health of the population near all of these power plants, and like the case of the Pawnee facility. The solution of including an hourly emission limit in the operational permit to ensure the continuous use of the emissions control device, is a perfectly feasible solution and it will go a long way in protecting the health of the population and the environment of Colorado.

The intent of the 1-hr SO₂ NAAQS and of the process outlined in the DRR was to ensure that the major emitters of this pollutant would not place the population's health and the environment at risk. It is time to have Colorado policy reflecting those goals.

Sincerely,

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