

- Title V Permit Number V-17-005 for a Federally Enforceable Permit Limit of 8,208 Tons per Year of Sulfur Dioxide (SO₂) for Coal-Fired Boilers Units 1-9 for the Regional Haze Rule (RHR)” submitted by TVA and dated August 14, 2023 (“Significant Modification Application”) (together, “the Applications”);
2. The Air Quality Permit Notice issued on February 13, 2024;
 3. The Draft Permit issued for public comment on February 13, 2024 (“Draft Permit”);
 4. The Draft Statement of Basis/Summary issued for public comment on February 13, 2024 (“Draft Statement of Basis”);
 5. A Revised Statement of Basis/Summary dated July 19, 2024 (“Revised Statement of Basis”);
 6. An Executive Summary dated August 22, 2024; and
 7. Comments and Response on the Draft Permit (undated) (“Comment Response”)

Background

TVA’s Shawnee Fossil Plant is a coal-fired electric generating facility constructed from 1953-55, and fully online by 1957, located approximately 10 miles downstream of Paducah, Kentucky on the Ohio River. Renewal Application at 3-1, Draft Statement of Basis at 2. It consists of nine identical pulverized coal, dry-bottom, wall-fired units each capable of producing 175 megawatts (MW) of power with 1,691 million British thermal units (MMBtu) of heat input per hour. Draft Permit at 4. The plant’s primary fuel is pulverized coal, including Rocky Mountain bituminous and Powder River Basin sub-bituminous coals, with less than 5% of the boiler’s heat input being secondary fuel from nonhazardous waste materials such as used oil with less than 50 ppm PCB, and less than 3% of the boiler’s heat input being clean wood. No. 2 fuel oil is used for startup and stabilization. Draft Statement of Basis at 5. Currently, Units 1 & 4 are equipped with selective catalytic reduction (SCR) reactors for control of nitrogen oxides (NO_x) and spray dry absorber (SDA) systems for control of sulfur dioxide (SO₂) and acid gases but Units 2-3 and 5-9 are not. *Id.* Units 2-3 and 5-9 are equipped with bagfilters for control of PM, and hydrated lime injection for control of acid gases. *Id.*

KYDAQ issued the most recent Title V Renewal permit for the TVA Shawnee Fossil Plant on May 20, 2018. *Id.* at 27.⁵ TVA submitted three applications on which KYDAQ has proposed action in this Proposed Permit:

1. A July 22, 2022 application to add SCR on boilers 2-3 and 5-9;⁶
2. The November 18, 2022 application for renewal of the Title V Permit; and
3. The August 14, 2023 Significant Modification Application.

EPA issued a Finding of Failure to Submit for 15 states, including Kentucky, finding they failed to submit State Implementation Plans (SIPs) for the second planning period of the Regional Haze Rule (RHR) on August 30, 2022, with an effective date of September 29, 2022, starting a 2-year timeline for EPA to issue federal implementation plans (FIPs) for those states that failed to meet

⁵ Three revisions to the permit have since been issued, but did not affect the permit expiration.

⁶ This application was not included with the submission to EPA, nor was it included with the February 13, 2024 public notice for this action.

their obligation to submit and receive approval for SIPs. EPA, *Finding of Failure To Submit Regional Haze State Implementation Plans for the Second Planning Period*, 87 Fed. Reg. 52,856 (Aug. 30, 2022). The Significant Modification Application gives the finding of failure to submit, along with a letter from KYDAQ to TVA dated February 12, 2023 requesting the TVA reduce emissions from the Shawnee Fossil Plant, as a reason for the application. The application cover letter states “TVA has chosen the option to implement an emissions limit of 8,208 tons per year of SO₂, based on a 12-month rolling total, effective January 1, 2028.” Significant Modification Application at 1-2 (Applications at PDF 267-68). The referenced February 12, 2023 letter from KYDAQ to TVA, although not a part of the public record either accompanying the February 13, 2024 Public Notice or submitted to EPA for its review, was obtained through an open records request and is attached to this petition. That letter states:

On July 21, 2020, the Division for Air Quality (Division) sent a letter requesting TVA perform a four-factor analysis to assess potential emission control options that could be used to attain reasonable progress toward the state’s visibility goals. After review of the four-factor analysis report provided by Trinity Consultants (February 19, 2021), the Division determines that SO₂ emissions reductions at the Shawnee Plant are not only necessary, but achievable. The Division submits the following options for TVA to implement to reduce the Shawnee Plant’s significant impact on the 16 Class I areas. TVA will immediately incorporate into the Shawnee Plant’s Title V permit, either:

- an emissions limit of 8,208 tons per year of SO₂, based on a 12-month rolling total, effective January 1, 2028; or
- install and operate a Flue Gas Desulfurization Unit (FGD) on the seven uncontrolled units (2-3 and 5-9), effective no later than January 1, 2028.

Letter from Michael Kennedy, P.E., Director, KYDAQ, to Shannon Benton, Shawnee Fossil Plant Manager, Tennessee Valley Authority (February 14, 2023).⁷

The four-factor analysis referenced therein was obtained by a subsequent open records request after the public comment period for the Draft Permit, and is attached here for reference as well. Letter from Michael K. Bottorff, Plant Manager, Shawnee Fossil Plant to Melissa Duff, Director, Kentucky Division for Air Quality (Oct. 26, 2020), and Enclosure, *Regional Haze Four-Factor Analysis, Tennessee Valley Authority Shawnee Fossil Plant*, Prepared by Mike Zimmer, Principal Consultant, Trinity Consultants (Oct. 23, 2020).⁸

Petitioners

Kentucky Resources Council (KRC) is a statewide public-interest environmental law and advocacy organization. We work to protect Kentucky’s natural resources, promote policies for healthy communities, and assure that those who pollute our land, air, or water are held to

⁷ Attached as Appendix 3 to this petition.

⁸ Attached as Appendix 4 to this petition.

account. Our members and constituents live, work, and recreate—and their children play and attend school—in areas potentially impacted by the Proposed Permit.

National Parks Conservation Association (NPCA) is a national organization whose mission is to protect and enhance America’s national parks for present and future generations. NPCA performs its work through advocacy and education. NPCA has over 1.6 million members and supporters nationwide, including more than 18,000 in Kentucky, with its main office in Washington, D.C. and 24 regional and field offices. NPCA is active nationwide in advocating for strong air quality requirements to protect our parks, including submission of petitions and comments relating to visibility issues, Regional Haze SIPs, climate change and mercury impacts on parks, and emissions from individual power plants and other sources of pollution affecting national parks and communities. NPCA’s members live near, work at, and recreate in all the national parks, including those directly affected by emissions from Kentucky’s sources.

Sierra Club is a national nonprofit organization with 67 chapters and approximately 617,000 members nationwide—including nearly 5000 in Kentucky—dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth’s ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Sierra Club has long participated in Regional Haze and other Clean Air Act rulemakings and litigation across the country to advocate for public health and environmental protection.

Kentucky Conservation Committee is a state-based conservation non-profit dedicated to providing a trusted voice of the public in Kentucky’s capitol and throughout Kentucky, effectively advocating for protection, restoration and sustainable use of natural resources for the equitable benefit of all citizens in our Commonwealth.

Introduction & Requirements

Under the Clean Air Act, “any person” may petition EPA to object to a proposed permit “within 60 days after the expiration of [EPA’s] 45-day review period.” 42 U.S.C. § 7661d(b)(2); *see also* 40 C.F.R. § 70.8. Each objection in the petition must have been “raised with reasonable specificity during the public comment period provided for in § 70.7(h) of this part, unless the petitioner demonstrates that it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period.” 40 C.F.R. § 70.8(d). Any objection included in the petition “must be based on a claim that the permit, permit record, or permit process is not in compliance with applicable requirements or requirements [of 40 C.F.R. Part 70].” *Id.* § 70.12(a)(2).

Upon receipt of a petition, EPA “*shall* issue an objection within [60 days] if the petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements of this chapter.” 42 U.S.C. § 7661d(b)(2) (emphasis added); *see also* 40 C.F.R. § 70.8(c) (“The Administrator will object to the issuance of any proposed permit determined by the Administrator not to be in compliance with applicable requirements or requirements under this part.”).

EPA's 45-day review period ended October 23, 2024. This petition is being submitted within 60 days of the end of EPA's 45-day review, and thus is timely.⁹

Identification of Claims

Petitioners respectfully request that the Administrator object to the Proposed Permit, and state that the Proposed Permit fails to comply with the applicable requirements in that:

- 1) The Draft Permit and Statement of Basis lacked sufficient legal and factual basis for a new SO₂ limit;
- 2) The Proposed Permit grants an improper, over-broad permit shield for Regional Haze requirements;
- 3) The Proposed Permit contains new NO_x control requirements that lack legal and factual basis and required deadlines; and
- 4) The Proposed Permit lacks adequate monitoring provisions for the SO₂ limit.

Each of these claims is further explained below.

Claim 1: The Draft Permit and Statement of Basis lacked sufficient legal and factual basis for a new sulfur dioxide limit.

The Draft Permit includes a new permit condition limiting plantwide SO₂ emissions to “8,208 tons per year on a 12-month rolling total basis.” Proposed Permit, Section B, Emission Units: EU 1 through EU 9 - Nine Indirect Heat Exchangers, 2.g). A bracket after the limit states simply “[Regional Haze].” *Id.* No further explanation is given in either the Draft Permit, or the Draft Statement of Basis. The Public Notice issued with the Draft Permit gives the KYDAQ Public Notices webpage as the location to obtain “relevant supporting information,” however neither the letter from KYDAQ providing options for TVA to choose from for SO₂ controls at the Shawnee Fossil Plant, nor the four-factor analysis identifying potential controls were provided at that site at the time.

Title V implementing regulations require the Division to “set[] forth the legal and factual basis for the draft permit conditions,” that form the basis for the conditions in the permit “necessary to assure compliance with applicable requirements of the CAA, including the requirements of the applicable implementation plan.” 40 C.F.R. § 70.7(a)(5), US EPA, *Operating Permit Program*, 57 Fed. Reg. 32250, 32251 (July 21, 1992); *see also, e.g.*, US EPA, *Order Granting a Petition for Objection to a Title V Operating Permit*, Petition No. III-2023-15, In the Matter of United States Steel Corporation, Edgar Thomson Plant, Permit No. 0051-OP23, Issued by the Allegheny County Health Department, (Feb. 07, 2024), at 2; 42 U.S.C. §7661a(a). Further, Title V implementing regulations further require that permit proceedings such as the one for the Draft Permit “shall provide adequate procedures for public notice including an opportunity for public comment.” 40 C.F.R. § 70.7(h). In the public notice, the permitting authority is required to list where interested parties may obtain, among other things, the application and *all relevant supporting materials*. 40 C.F.R. § 70.7(h)(2).¹⁰ The permitting authority is then required to

⁹ 40 C.F.R. § 70.8(d).

¹⁰ Petitioners cited 40 C.F.R. § 70.7(h) in their initial comments (*see* Appendix 2 at 18), but to the extent the violation of the requirement to provide a source for all relevant supporting materials in 70.7(h)(2) constitutes

“respond in writing to all significant comments raised during the public participation process,” *Id.* § 70.7(h)(6), meaning that the process requires that the permitting authority provide all relevant information and consider and account for public input *based on that information*.

In violation of Title V implementing regulations there is no explanation in either the Draft Permit or the Draft Statement of Basis of the legal basis for the new plantwide SO₂ limit, including any description of the underlying monitoring, modeling, and emissions, or required four-factor analysis.

The Proposed Permit is also unclear on how Shawnee will comply with the permit requirement in violation of requirements for a clear factual basis. For instance, the Draft Permit states “[t]he permittee shall conduct a performance test prior to the operation of the SCR and the SDA for Units 1 through 9 for SO₃ and SAM (H₂SO₄ including SO₃),”¹¹ implying SDAs are to be installed on units 2, 3, and 5-9. These controls are not referenced in Control Equipment Summary for these units, though, nor mentioned anywhere in the Draft Statement of Basis. Regardless of whether SDAs are to be added or not, the method of compliance with this new limit is significant, as changes to the operation of the units such as addition of controls or changes to operating conditions such as restrictions on throughput or hours of operation can significantly impact both the SO₂ limit’s enforceability, as well as potentially impact emissions of other pollutants.

Because the Statement of Basis failed to provide a meaningful legal or factual basis for the SO₂ permit condition, petitioners were unable to effectively comment on the permit, and other members of the public may have been completely unaware of the basis for the change and thus without sufficient information to provide any comment. The public, including petitioners, also lacked sufficient information to fully evaluate the permit’s purported compliance with applicable requirements of the CAA, including the requirements of the RHR and applicable implementation plan. Were that information available, the public could have provided meaningful comment on the justification proffered in a draft permit, including a technical and legal review of four-factor analysis that should have supported the proposed SO₂ limit—an opportunity the Title V implementing regulations require.

This claim was raised in the comments of petitioners in part 2 of our comments, at pages 4-10, and part 7, at pages 18-19.

Realizing its error, KYDAQ acknowledges the insufficient legal basis in the Response to Comments, and includes new explanation there and in the Revised Statement of Basis submitted to EPA along with the Proposed Permit. Response to Comments at 10, Revised Statement of Basis at 3.

additional grounds for this claim, the grounds arose after the comment period and it was impracticable to raise such objection during the comment period in that additional documentation such as the four-factor analysis that formed the basis for the permit and application was only obtained by open records request after the comment period ended.

¹¹ Draft Permit EU 1-9, condition 3.l). Similar reference is made at condition 2.f), referencing “emissions from Units 1 and 4 [APE20150003] and Units 2, 3, 5, 6, 7, 8, 9 [APE20220006] resulting from the completion of SCR and SDA installation for each projects...”

In addition, KYDAQ fails to recognize or address the failure to give a clearer *factual* basis regarding the method for compliance with the new limit.

KYDAQ states that it does not concur that the lack of information frustrated the purpose of public comment, or the requirement that sufficient information be given to make informed comment, but states “however, the Division has updated the Statement of Basis and Summary document for clarity,” and again adds explanation available nowhere in the underlying proceeding, stating “[i]n lieu of a four-factor analysis, TVA has taken a limit to reduce Shawnee’s impact on the 17 Class I areas that were identified through analysis performed by a contractor hired by the VISTAS RPO. The permitted limit will be included in the final Regional Haze SIP to meet the federal enforceability requirements.” Response to Comments at 19-20.

In its “response,” KYDAQ therefore does little but deny the frustration of public commenters ability to evaluate the permit, and then add new information not available at the time, thus reinforcing the fact that sufficient information was not available at the time of the public comment period. Indeed, as shown in attachments obtained via open records requests, including after the underlying proceeding, substantially more relevant information forming the basis for the application and Draft Permit was available, and would have formed the basis for further comment.¹² As stated in the 2023 letter from KYDAQ to TVA, and obtained only via an open records request, “SO₂ emissions reductions at the Shawnee Plant are not only necessary, but achievable.” Attachment 4 at 1. However, KYDAQ’s failure to divulge the legal or factual basis for the limit, the existence of the letter from KYDAQ to TVA, or the existence of the original four-factor analysis referenced therein, deprived petitioners the opportunity to meaningfully comment on the the SO₂ limit. Had it been provided the basis of the limit as required, petitioners could have (and would have) commented on how applicable requirements and the four-factor analysis show SO₂ controls to be “not only necessary, but achievable.” Accordingly, petitioners respectfully request that EPA object to the Proposed Permit submitted to it because the Draft Permit issued for public notice lacked sufficient legal and factual basis for a new SO₂ limit, ultimately frustrating and undermining the public comment process.

Claim 2: The Proposed Permit Grants an improper, over-broad permit shield for Regional Haze requirements.

In its application materials, TVA requested that the Division grant it a permit shield as part of this Title V permit under 401 KAR 52:020 Section 11. Significant Modification Application at 1 (Applications at PDF 267). The Proposed Permit contains a permit shield provision which provides that “Compliance with the conditions of this permit shall be considered compliance with: (1) Applicable requirements that are included and specifically identified in this permit; and (2) Non-applicable requirements expressly identified in this permit.” Proposed Permit at 58, Section G, 1.q.

401 KAR 52:020 Section 11 requires the Division to include and “specifically identify” the permit provisions to which the permit shield applies. *See also* 42 U.S.C. s 7661c(f). The original Draft Permit contained no citation to the Regional Haze Rule, and petitioners commented that KYDAQ must specify whether and how it is responding to TVA’s request in the Statement of

¹² *See* Attachments 3 and 4.

Basis, and pursuant to regulation it must provide an opportunity for meaningful public comment on its reasoning. Petitioners further submitted that KYDAQ cannot grant an improper, over-broad permit shield for Regional Haze requirements. Appendix 2 at 10-11. Indeed, as KYDAQ had not yet at the time of the public comment period on the Draft Permit released a draft of its proposed Regional Haze SIP, let alone issued a final proposed SIP, or submitted such a proposed SIP to EPA for approval (and it goes without saying that EPA has, accordingly, never approved this potential future SIP). As EPA has made clear, the only way to satisfy SIP obligations is through a SIP, with all of the attendant requirements of the relevant SIP being met, such as making the measures permanent and enforceable. *See, e.g., EPA, Air Plan Disapproval; Missouri; Interstate Transport of Air Pollution for the 2015 8-Hour Ozone National Ambient Air Quality Standards*, 89 Fed. Reg. at 63,884 (Aug. 06, 2024). And, also as explained above, the KYDAQ entirely failed to explain how compliance with the SO₂ emission cap satisfies the RHR and the four statutory factors. As a result it is premature, at best, to claim that, under the permit shield provision, compliance with the proposed SO₂ emission cap satisfies Shawnee's Regional Haze obligations for the second planning period.¹³

As pointed out in KYDAQ's Response to Comments, the Proposed Permit has been updated "to include the applicable regulation, 40 CFR 51, Subpart P, Protection of Visibility." Response to Comments at 12; *see also* Proposed Permit at 3 and 10. KYDAQ further states that "[t]he permit shield applies to all applicable requirements included and specifically identified in the Title V renewal permit, as specified in Section G.1.q. of the permit and in the Kentucky Administrative Regulation 401 KAR 52:020, Section 11(1)." Response to Comments at 12.

This amendment to the Proposed Permit again only highlights the fundamental flaw in the Draft Permit - the lack of opportunity to comment on the very basis for the change as required by the Clean Air Act and Part 70. Changes to permits that seek to avoid an applicable requirement cannot be issued as minor permit amendments, 40 C.F.R. § 70.7(e)(2)(i)(A)(4), and therefore constitute significant permit modifications, *id.* § 70.7(e)(4)(i), which require public participation, *id.* § 70.7(e)(4)(ii). Therefore, in adding an additional applicable requirement to the permit, Response to Comments at 12, "that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject," *id.* at 4 ("in lieu of a four-factor analysis, TVA has taken a limit to reduce Shawnee's impact..."), the Proposed Permit submitted to EPA is a significant modification from the Draft Permit issued for public notice, and requires a new public notice and comment period.

Wherefore, petitioners respectfully request that EPA object to the Proposed Permit because the Draft Permit contained an over-broad permit shield without clearly stating the applicable requirements to which it applied, and the Proposed Permit adds an additional applicable requirement necessitating public participation.

¹³ Petitioners do not object here to the specific limit, and acknowledge that the level of the SO₂ limit is properly determined through the Regional Haze SIP process - which was only conducted after this permit was issued. *See* Response to Comment at 3, 4, 9, 10, 11, 19-20. Petitioners only claim that there was no way to determine at the time of the public comment period whether the permit satisfied "all applicable requirements," and therefore improperly provided a permit shield for requirements that had not yet been determined (and could not be in a single permit).

Claim 3: The Proposed Permit Contains new nitrogen oxides control requirements lacking legal and factual basis and required deadlines;

SCR technology reduces NO_x emissions. The Proposed Permit anticipates the addition of SCR on units 2-3 and 5-9. Proposed Permit at 58-59. Although permitting authorities are required to provide a statement of legal and factual basis for draft permits, 40 C.F.R. § 70.7(a)(5), neither the Draft Permit nor the Draft Statement of Basis gave any legal or factual basis for the installation of these additional controls.

In response to Petitioners' comment raising this issue, KYDAQ added a statement to the Revised Statement of Basis explaining that the installation of the SCRs was "for the purpose of facilitating NO_x reductions to meet applicable NO_x budgets for interstate transport (Cross State Air Pollution Rule, or CSAPR, and EPA's Good Neighbor Rule)." Response to Comments at 13.

In its "response" KYDAQ therefore does little but deny the frustration of public commenters ability to evaluate the permit, and then add new information not available at the time, thus reinforcing the fact that sufficient information was not available at the time of the public comment period. Indeed Petitioners' original comment assumed the basis for the addition of the SCRs was compliance with the RHR. Appendix 2 at 11. Because Petitioners were not provided the legal and factual basis for the installation of the SCRs, we were unable to provide comment on the inclusion of an applicable requirement, including whether the requirement is sufficiently incorporated and there are sufficient provisions to assure compliance. 40 C.F.R. § 70.6(a)(1).

Claim 4: The Proposed Permit lacks adequate monitoring provisions for the SO₂ limit.

The Proposed Permit requires continuous emission monitoring systems (CEMS) for SO₂. It further states the following "requirements":

- i) Each compliance period shall include only "valid operating hours" (i.e., operating hours for which valid data are obtained for all the parameters used to determine hours [sic] SO₂ mass emission). Operating hours shall be excluded if either:
 - A) The substitute data provisions of Part 75 are applied for any of the parameters used to determine the hourly SO₂ mass emissions; or
 - B) An exceedance of the full-scale range of a monitoring system occurs for any of the parameters used to determine the hourly SO₂ mass emissions; and
- ii) Only unadjusted, quality-assured values for all the parameters used to determine hourly SO₂ mass emissions shall be used in the emissions calculations; and
- iii) The total SO₂ mass emissions shall be calculated for the initial and each subsequent 12-month rolling total compliance periods by summing the valid hourly SO₂ mass emissions values for all the valid operating hours in the compliance period for both common stacks.

Proposed Permit at 10.

However, there is no limit given on the number of required “valid operating hours,” or any indication of what data should be used in the event “the full-scale range of a monitoring system occurs,” nor what that range in fact is required to be for any given parameter. Effectively, the new SO₂ limit could remain entirely un-monitored.

All Title V permits are required to contain adequate monitoring, recordkeeping, reporting, and other requirements to assure compliance with applicable requirements. 42 U.S.C. § 7661c(c); 40 C.F.R. § 70.1(b). Because there is no limit on the number of required valid operating hours, the Proposed Permit lacks adequate monitoring, recordkeeping, and reporting requirements. Petitioners raised this issue in comments, Appendix 2 at 8-9, however KYDAQ does not appear to have responded directly to this point, Response to Comments at 11-12. Wherefore, Petitioners respectfully request that EPA object to the Proposed Permit.

CONCLUSION

For the reasons stated above, Petitioners request that EPA object to the Clean Air Act Title V Operating Permit Renewal and Modification for the TVA Shawnee Fossil Plant, Kentucky Air Quality Permit No. V-23-006, with a proposed issuance date of September 06, 2024 (“Proposed Permit”).

Signed this 20th day of December, 2024

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