

**BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.**

In the Matter of Tucson Electric Power Irvington/H. Wilson Sundt Generating Station	Appeal No. PSD 18-02 Pima County Department of Environmental Quality PSD Permit No. 1052
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RESPONSE OF PERMITTEE TUCSON ELECTRIC POWER TO
PETITION FOR REVIEW OF PREVENTION OF SIGNIFICANT DETERIORATION
PERMIT FOR THE IRVINGTON/H. WILSON SUNDT GENERATING STATION

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INTRODUCTION

Tucson Electric Power (“TEP”), the permittee in this proceeding, respectfully requests that the Environmental Appeals Board (“EAB” or the “Board”) deny Sierra Club’s petition for review (“Petition”) of the Pima County Department of Environmental Quality’s (“County”) permit authorizing TEP to construct and operate up to 10 new natural gas-fired reciprocating internal combustion engines (“RICE units”) at its Irvington/H. Wilson Sundt Generating Station (the “Permit”). Sierra Club argues that the Permit does not contain adequate provisions to ensure that its limit on the RICE units’ annual emissions of oxides of nitrogen (“NOx”) is practically enforceable, and that the County must either require additional monitoring of the units’ NOx emissions or find the Project is subject to Prevention of Significant Deterioration (“PSD”) requirements for NOx.

At the outset, TEP respectfully submits that the Board should summarily dismiss the Petition, which on its face does not state a claim that EAB review is warranted under 40 C.F.R. § 124.19. EPA policy is clear that the “power of review should be only sparingly exercised” and “most permit conditions should be finally determined at the [permitting authority] level.” *In re Knauf Fiber Glass, GMBH*, 8 E.A.D. 121, 127 (EAB 1999) (quoting 45 Fed. Reg. 33,290, 33,412 (May 19, 1980)). Sierra Club has not raised an important policy consideration for review: the lone issue presented—whether the Permit’s annual NOx emissions cap is practically enforceable—is a commonplace one that does not require further guidance from the Board. And because the Petition simply restates Sierra Club’s arguments submitted in public comments without even an attempt to refute the County’s responses to those comments, it fails to demonstrate any clear error meriting the Board’s review, particularly in light of the deference due to the permit issuer on technical issues like this. In light of these factors and the fact that the Clean Air Act’s (“CAA”) one-year deadline for final action on this PSD Permit has already

passed, the most appropriate course of action is to dismiss the Petition without wasting resources to adjudicate the merits.

In any event, Sierra Club's arguments are without merit and the Petition should be denied. Sierra Club argues that the biannual performance tests used to calculate unit-specific NOx emission factors are too infrequent to ensure compliance with the emissions cap. But Sierra Club ignores the myriad other Permit provisions that interact with that performance testing requirement to make the NOx emissions cap practically enforceable. The performance tests alone are not the sole means of demonstrating compliance: TEP must use each RICE unit's test results to develop a unit-specific NOx emission factor and use that value, along with actual operating and fuel use data, to calculate 12-month rolling NOx emissions totals on a monthly basis using inherently conservative assumptions. In addition, the Permit's NOx calculation requirements are coupled with rigorous provisions governing the operation and maintenance of required NOx emission controls, including requirements to record key operating parameters affecting control performance. EPA has frequently upheld substantially similar emission limits and compliance demonstration requirements as sufficient to ensure compliance with annual emission limits.

In support of its argument to the contrary, Sierra Club simply repeats its public comments on the issue nearly verbatim without demonstrating why the County's responses were inadequate. Accordingly, Sierra Club has not carried its burden to demonstrate that review is warranted, and the Petition should be denied.

STATEMENT OF THE CASE

TEP is the owner and operator of the Irvington/H. Wilson Sundt Generating Station in Tucson, Arizona. TEP is seeking a permit to undertake the Project in order to replace two existing 81 megawatt ("MW") steam generating units with up to 10 new RICE units, each with a

nominal net generating capacity of 19 MW (for a total of up to 190 MW). The Project's purpose is to support the integration of intermittent renewable generation resources into the TEP system by providing reliable, efficient grid-balancing generating resources that can ramp up quickly and provide 100 percent of their effective load carrying capability during multiple peak periods of any length. Permit Application at 2-5, Pet. Ex. 3; *see* Motion for Expedited Review at 3-5 (Sept. 20, 2018).

Because the Project would constitute a major modification of the existing source for some regulated NSR pollutants, the CAA requires TEP to undergo preconstruction review for the Project under the CAA's PSD provisions. 42 U.S.C. § 7475(a). On August 1, 2017, TEP submitted an application for a combined PSD permit and revised Class I permit¹ to the County. *See* Permit Application, Pet. Ex. 3. The County is the delegated PSD permitting authority for EPA within Pima County, Arizona.² The County deemed TEP's application complete on August 23, 2017.³

In the absence of any restrictions on annual NOx emissions from the RICE units, the Project would result in a significant net emissions increase of NOx from the source subjecting the RICE units to PSD requirements for that pollutant. However, TEP requested a cap on the RICE units' annual NOx emissions. Permit Application at 4-8, Pet. Ex. 3. Because retiring the

¹ A Class I permit is a combined construction and operation permit issued under an approved state Title V permitting program. *See* 66 Fed. Reg. 63,175 (Dec. 5, 2001).

² *See* Agreement for Delegation of Source Review under the Federal Prevention of Significant Deterioration (PSD) Program Set Forth in 40 CFR 52.21 by the United States Environmental Protection Agency, Region 9 to the Pima County Air Quality Control District (June 5, 2018), available at https://www.epa.gov/sites/production/files/2018-06/documents/pima_psd_delegation_agreement-2018-06-05.pdf.

³ *See* Pima County Dep't of Env'tl. Quality Air Quality Permit Application Completeness Checklist for Class I (Aug. 23, 2017), available at http://webcms.pima.gov/UserFiles/Servers/Server_6/File/Government/Environmental%20Quality/Air/TEP%20PSD%20Webpage/17-08-23-Administrative-Completeness-Checklist.pdf.

two steam generating units associated with the Project would yield contemporaneous creditable NOx emission decreases of 139.6 tons per year (“tpy”), TEP requested an annual NOx emissions limit of 179.0 tpy for the 10 RICE units, limiting the Project’s net emissions increase for NOx to 39.4 tpy. *Id.* at 4-9. In a subsequent letter, TEP formally requested that the RICE units’ NOx emissions cap be reduced to a more restrictive level of 170.0 tpy to yield a net NOx emissions increase of 30.4 tpy, resulting in a 24 percent compliance margin relative to the PSD significance level for NOx of 40 tpy. Letter from Conrad Spencer, Director, Sundt Generation Modernization Project, to Rupesh Patel, Pima County Dep’t of Env’t. Quality (Feb. 23, 2018), TEP Ex. 1; *see* 40 C.F.R. § 52.21(b)(23)(i) (defining “significant” NOx emissions increase).

The County released a draft permit and technical support document for public comment on February 9, 2018. DRAFT, Pima County Dep’t of Env’t. Quality Air Program Prevention of Significant Deterioration Air Quality Permit Issued to Tucson Electric Power Irvington Generating Station, Permit No. 1052 (Feb. 9, 2018), TEP Ex. 2 (“Draft Permit”) The Draft Permit capped total NOx emissions from the 10 RICE units at 170.0 tpy, based on a 12-month rolling total, calculated monthly. Draft Permit at 21 Condition II.A.1.a (Feb. 9, 2018), TEP Ex. 2. To demonstrate compliance with this limit, TEP would be required to conduct performance tests at each RICE unit across a range of operating loads at least once every two years (with at least five units tested per calendar year) and calculate a unit-specific NOx emissions factor for non-startup periods based on the maximum emissions observed. Draft Permit at 25 Condition II.D.2. On a monthly basis, TEP would calculate NOx emissions from each RICE unit using the unit-specific NOx emission factor, records of heat input during non-startup periods, the number of startups, and a “vendor-guaranteed” emission rate for each startup event, then combine the RICE units’ monthly emissions to calculate a 12-month rolling total value. Draft Permit at 25

Condition II.C.9-10. The Draft Permit also required each RICE unit to be equipped with a selective catalytic reduction (“SCR”) system for NOx emissions control and included extensive provisions governing operation, maintenance, and recording of control device parameters of those SCR systems. Draft Permit at 21-24 Condition II.A.1.c, II.B.3, II.C.2, II.C.4, II.C.6. Finally, the Draft Permit included a condition limiting the number of startups allowed per day to five startups per engine. Draft Permit at 22 Condition II.A.6.

Sierra Club filed comments on that Draft Permit on March 29, 2018. Sierra Club Comments, Pet. Ex. 1. Among other issues, Sierra Club objected that the proposed NOx emissions cap is not practically enforceable because it relies on biannual stack testing for each RICE in order to calculate NOx emissions rather than continuous emissions monitoring systems (“CEMS”). *Id.* at 8-9; Pless Report 20-23, Attachment 1 to Pet. Ex. 1. Sierra Club also commented that the Draft Permit lacked a clear methodology for calculating NOx emissions and did not specify the NOx emission rate to be used in that calculation for each startup event. *Id.* at 24-25.

Following the notice and comment period, the County issued a final permit, technical support document (“TSD”), and response to comments (“RTC”) on August 8, 2018. *See* Pet. Ex. 2, 4, 5. The County responded directly and thoroughly to Sierra Club’s concerns regarding the practical enforceability of the 170.0 tpy NOx emission cap, explaining that while annual or biannual stack testing alone may be insufficient to assure compliance, the draft and final permits contain numerous additional testing, monitoring, and recordkeeping requirements regarding operation of the unit and required control technology to ensure that the NOx emission cap is practically enforceable. RTC at 9-13, Pet. Ex 6. The County addressed Sierra Club’s other concerns with the NOx emissions cap by adding a new permit term specifying the calculation

methodology (i.e., a formula) for monthly NOx emissions and by providing additional documentation in the permit docket for the RICE units' vendor-specified cold startup NOx emission rate. Other than these two changes, the final Permit's provisions regarding the RICE units' NOx emissions generally match those in the Draft Permit. *See* Permit at 23-27 Condition II.A.1, II.A.6, II.B, II.C, II.D.1-2, Pet. Ex. 5.

Sierra Club filed its petition for review on September 7, 2018. The petition raises one narrow issue: whether the permit's cap on total NOx emissions from the RICE units of 170.0 tons per year is practically enforceable. Pet. at 2-3. TEP has filed a motion for expedited review of this appeal. Motion for Expedited Review (Sept. 20, 2018).

ARGUMENT

I. The Board Should Summarily Decline to Review Sierra Club's Petition.

In light of the facial deficiency of Sierra Club's Petition and the time that has already elapsed in this PSD permit proceeding, the Board should summarily dismiss this appeal without engaging in a lengthy analysis of the merits. The EAB's decision as to whether to review a PSD permit is, fundamentally, an exercise of discretion. *In re Pio Pico Energy Center*, 16 E.A.D. 56, 63 (2013) ("The Board has discretion whether to review a PSD permit."). In promulgating the regulations governing appeals to this Board, EPA warned that the "power of review should be only sparingly exercised" and "most permit conditions should be finally determined at the [permitting authority] level." *Knauf Fiber Glass*, 8 E.A.D. at 127 (quoting 45 Fed. Reg. at 33,412). In some cases, it may be appropriate for the Board simply to summarily dismiss the petition for review. *See id.* (recognizing "some issues will still not warrant a grant of review, even if the issues have been properly preserved for review and the petitions contain sufficient specificity"). This is just such a case.

Summary disposition is warranted here because Sierra Club's Petition, on its face, does not meet the Board's threshold criteria for review. A petitioner bears the burden to show that each issue raised is based on "(A) [a] finding of fact or conclusion of law that is clearly erroneous, or (B) [a]n exercise of discretion or an important policy consideration that the [EAB] should, in its discretion, review." 40 C.F.R. § 124.19(a)(4)(i); *Pio Pico*, 16 E.A.D. at 63, 65. The Petition plainly does not raise an "important policy consideration" deserving EAB scrutiny. The sole issue Sierra Club raises on appeal is whether the Permit's provisions are sufficiently enforceable to ensure compliance with the NOx emissions cap for the RICE units. Pet. at 3. TEP does not dispute that the NOx emissions cap must be practically enforceable to effectively limit the RICE units' potential to emit. But this is not a novel issue: EPA's policy on the practical enforceability of emission limits, including annual emission limits, is well-defined and does not require further resolution by the Board. In fact, the EAB and the Administrator have each already considered and rejected challenges to the practical enforceability of annual emission caps that are substantially similar to the one at issue here. *See, e.g., In re Shell Offshore, Inc.*, 15 E.A.D. 536, 546-67 (EAB 2012) (upholding limits on potential to emit based on applying relevant emission factors to amount of fuel combusted on a rolling basis); Order Partially Granting and Partially Denying Petition for Objection to Permit, *In re Pope & Talbot, Inc., Lumber Mill*, Petition No. VIII-2006-04, at 4-6 (Adm'r Mar. 22, 2007) ("*Pope & Talbot*") (finding rolling emission limits in addition to prescribed emission factors and appropriate monitoring and recordkeeping were sufficient to restrict potential to emit).

Likewise, the Petition fails to sufficiently allege that the County based its permit decision on any "clearly erroneous" finding of fact or conclusion of law. It is not enough to simply claim that the permit issuer has erred: where the petitioner challenges an issue the permit issuer

addressed in its response to comments, the petitioner must explain why that response was “clearly erroneous or otherwise warrants review.” 40 C.F.R. § 124.19(a)(4)(ii). “The Board consistently has denied review of petitions that merely cite, attach, incorporate, or reiterate comments previously submitted on the draft permit.” *Pio Pico*, 16 E.A.D. at 65; *see also In re Sutter Power Plant*, 8 E.A.D. 680, 687 (EAB 1999) (“It is not sufficient simply to repeat objections made during the comment period...”); *LeBlanc v. EPA*, 310 F. App’x 770, 775 (6th Cir. 2009) (holding EAB correctly found petitioners to have procedurally defaulted where petitioners “merely restated their grievances” without offering reasons why permit issuer’s responses were clearly erroneous). The petitioner’s burden to demonstrate clear error is even greater on “matters that are fundamentally technical or scientific in nature,” where the Board “typically will defer to a permit issuer’s technical expertise and experience” if the rationale is adequately explained and supported in the record. *Pio Pico*, 16 E.A.D. at 64.

Sierra Club’s Petition does not meet this test. Indeed, its argument is little more than a direct restatement of its comments on the Draft Permit in the form of block quotes. Pet. at 10-12. Sierra Club acknowledges that the County addressed these comments by quoting the County’s responses nearly in their entirety. *Id.* at 13-16. But rather than develop arguments explaining why those responses were inadequate, Sierra Club simply summarized its initial objection without *any* elaboration:

[n]otwithstanding [the County’s] responses, the core fact remains that compliance with the monthly, 12-month rolling NOx cap is determined solely by multiplying energy consumed during non-startup periods by the applicable non-startup NOx emission factor that is only established once every two years by a stack test. Because that infrequent testing is inadequate to assure accurate and continuous monthly compliance with the NOx cap the permit should be denied.

Id. at 16. Sierra Club must provide more than this *ipse dixit* claim to demonstrate clear error. It is particularly deficient given that the County’s conclusions regarding what permit provisions are

sufficient to make the NOx emissions cap practically enforceable are precisely the kind of technical decisions that merit the Board's deference. *See Shell Offshore*, 15 E.A.D. at 557 (stating in challenge to practical enforceability of emissions cap that "determination of a source's PTE is inherently an exercise that requires technical expertise").

Summary dismissal is further warranted because, as TEP argued in its Motion for Expedited Appeal, prompt action on this Permit is essential in order to give effect to Congress's deadlines for action on PSD permit applications and to give TEP an opportunity to complete the Project in time to support scheduled renewable generation additions. Section 165(c) of the CAA requires a final decision on a PSD permit "not later than one year after the date of filing" a complete application, and that deadline includes EAB's review of any appeals. 42 U.S.C. § 7475(c); *Avenal Power Center, LLC v. EPA*, 787 F. Supp. 2d 1, 3-4 (D.D.C. 2011). Here, the County deemed TEP's PSD permit application complete on August 23, 2017, meaning that this statutory deadline has already passed. At the same time, TEP faces an urgent need to begin construction: the Project must be complete in time for the RICE units to support additional wind and solar energy sources scheduled to begin operation in 2020. Any further delay in the Project could jeopardize TEP's ability to ensure continued reliability due to the intermittent nature of these renewable generation assets. *See* Motion for Expedited Review at 3-5.

In light of these factors, the EAB should decline to exercise its discretionary review of Sierra Club's Petition. Summary dismissal is the appropriate course here, where the Petitioner has failed to state a case that review is warranted and where engaging in a lengthy analysis of the merits will only exacerbate the current exceedance of Congress's one-year deadline for PSD permit proceedings.

II. The Permit's NOx Emissions Cap Is Practically Enforceable.

Even if the Board decides that summary dismissal is not appropriate, it should deny to review the Permit because the extensive testing, monitoring, and recordkeeping requirements in the Permit are sufficient to ensure that the RICE units' NOx emission cap is practically enforceable. The Permit subjects TEP to rigorous requirements to monitor the units' operations and calculate 12-month rolling NOx emission totals based on an inherently conservative methodology, while also requiring TEP to operate and maintain its emission controls to minimize NOx emissions. Notably, the record shows that those controls, coupled with the Permit's operational limits on daily startups, make it impossible for the RICE units to exceed the NOx emissions cap. EPA has routinely upheld compliance demonstration approaches that are substantially similar to—and in some cases, less stringent than—what the Permit requires. Sierra Club has failed to demonstrate that the County's actions were clearly erroneous.

A. The Permit Ensures Continuous Compliance with the NOx Emissions Cap.

The terms of this Permit are more than adequate to ensure that the NOx emissions cap is practically enforceable. Reiterating its comments on the Draft Permit, Petitioner mischaracterizes the Permit as relying solely on the results of a single biannual stack test from each RICE unit to demonstrate compliance with the NOx emissions cap. Pet. at 10-12 (citing Sierra Club Comments and supporting technical report to claim that “annual stack tests are not sufficient to assure compliance with emissions limits”). But in doing so, Sierra Club ignores key aspects of the Permit, including the requirements for how the required stack tests are performed; the fact that those stack tests are used as just one input in TEP's ongoing monthly calculations of 12-month rolling NOx emission totals; and the myriad other robust requirements for TEP to operate, maintain, and document operation of its NOx emission controls.

First, the Permit does not simply require TEP to conduct a “single stack test” at each RICE unit. Pet. at 10. Rather, TEP must test each unit’s NO_x emissions “at 25, 40, 70, and 100 percent of peak load or at a minimum and peak load capacity in the normal operating range of the engine, based upon the past twelve months of operation,” and report the results of these tests to the County within 30 days. Permit at 27 Condition II.D.2.b, II.D.6, Pet. Ex. 5. Thus, the Permit requires TEP to gauge each RICE unit’s emissions across a wide range of operating profiles in order to develop a complete picture of its performance. And even though the engines are identical and manufactured by a single manufacturer, these same tests must be performed separately for each of the 10 RICE units, with at least five units tested in each calendar year. Permit at 27 Condition II.D.1, Pet. Ex. 5.

Second, compliance with the NO_x emissions cap is not “based entirely on” the results of these stack tests. Pet. at 10. As Sierra Club acknowledges elsewhere in its brief, the stack tests are used to establish unit-specific NO_x emission factors for each RICE unit that are then applied, along with other operating parameters, to calculate the 12-month total NO_x emissions from these units on a monthly basis. TEP must apply the results of the most recent NO_x emissions test to establish each unit’s NO_x emission factor for non-startup periods expressed in pounds per million British thermal units (“lb/MMBtu”) of heat input, using the “*maximum* lb/MMBtu emission factor observed during testing of such RICE *under any load conditions.*” Permit at 27 Condition II.D.2.c, Pet. Ex. 5 (emphases added). In addition, TEP must monitor each unit’s hours of operation, natural gas consumption in MMBtu, number and duration of startup events, and whether each hour or tenth of an hour of operation reflects startup or non-startup operation. Permit at 25-26 Conditions II.B.1, II.C.1, II.C.3, Pet. Ex. 5. On a monthly basis, TEP must use these records to calculate each RICE unit’s total NO_x emissions as the sum of startup and non-

startup emissions. Permit at 26 Condition II.C.9, Pet. Ex. 5. For non-startup periods, TEP must multiply the unit-specific emission factor by total heat input during non-startup periods. *Id.* For startup periods, TEP must multiply the number of startup events by 10.3 lb, the specified NOx emission factor for cold startups. *Id.* TEP then calculates the total NOx emissions for the 10 RICE units, both for the most recent month and as a 12-month rolling total, to determine whether it is in compliance with the 170.0 tpy NOx emissions cap. Permit at 27 Condition II.C.10, Pet. Ex. 5.

As the County noted in its RTC, this calculation methodology is inherently conservative and will tend to overstate the RICE units' NOx emissions. RTC at 13, Pet. Ex. 6. First, the Permit requires TEP to base its NOx emission factor for each RICE unit on the *highest* NOx emission rate observed during its most recent stack test, rather than using load-specific emission factors. *Id.* As a result, the Permit's calculation methodology assumes worst-case non-startup emissions performance at all loads. And second, the Permit requires TEP to use the vendor-specified cold startup NOx emission factor—which is approximately three times higher than the warm startup emission factor—for *all* startups, even though it is physically impossible to have more than one cold startup within a span of two days. *See id.* (comparing cold startup emissions of 10.3 lb/startup to warm startup emissions of 3.5 lb/startup and noting “cold start conditions represent a startup occurring after 2-3 days of engine nonoperation”). Because this methodology inherently overstates emissions from the RICE units, it provides even greater assurance that TEP will comply with its NOx emissions cap.

Finally, the Permit contains numerous provisions governing TEP's operation and maintenance of applicable NOx emission controls to ensure continuous compliance with its NOx limits. TEP must equip each RICE unit with an SCR system and operate it at all times that fuel

is flowing to the RICE, excluding startup. Permit at 23 Condition II.A.1.c, Pet. Ex. 5. Each SCR system must be maintained and operated in a manner consistent with good air pollution control practice for minimizing NO_x emissions, including via routine maintenance, inspections, and catalyst cleaning or replacement according to manufacturer recommendations. *Id.* The SCR must be equipped with a continuous NO_x process monitor, which monitors the NO_x concentration in SCR outlet gases and adjusts ammonia injection to the SCR accordingly to maintain the desired level of reduction. *Id.* TEP must monitor SCR operating parameters that affect NO_x removal, including the ammonia injection rate and SCR outlet temperature, and maintain records of SCR inspection, maintenance, and catalyst upkeep. Permit at 25-26 Condition II.B.3, II.C.6, Pet. Ex. 5. And if the ammonia injection to any SCR fails at any time, the RICE unit must be shut down if injection cannot be restored within 10 minutes. Permit at 23 Condition II.A.1.c.iv, Pet. Ex. 5. Notably, all of these conditions apply during the performance tests used to establish each unit's NO_x emission factor, providing the County with ample documentation to compare the SCR's performance during that test with performance during day-to-day operations. EPA has previously stated that requirements for proper operation and maintenance of emission control systems may sufficiently ensure ongoing compliance with an emission limitation. *See* 62 Fed. Reg. 54,900, 54,918 (Oct. 22, 1997) (stating "once an owner or operator has shown that the installed control equipment can comply with an emission limit, there will be a reasonable assurance of ongoing compliance with the emission limit as long as the emissions unit is operated under the conditions anticipated and the control equipment is operated and maintained properly").

These provisions regarding the SCR systems, coupled with the Permit's limitation on the number of startups for each engine per day, *see* Permit at 24 Condition II.A.6, Pet. Ex. 5, are

particularly significant because they constitute operational limitations that ensure the RICE units cannot possibly exceed the 170.0 tpy NOx emissions cap. In other words, these operational limitations—in addition to making sure the calculation of 12-month rolling average NOx amounts is conservative—actually limit the 10 RICE units’ potential to emit to less than 170.0 tpy. Documentation from the vendor for the RICE units demonstrates that during non-startup operations, each unit will emit no more than 1.5 pounds per hour (“lb/hr”) of NOx when emission controls are used.⁴ Permit TSD Attachment A at 3, Pet. Ex. 4 (listing “Flue gas emissions after emission control system at 25-100% engine loads as 60 minutes average”). Using this value, the County estimated the RICE units’ potential emissions under a worst-case scenario in which each unit has up to its five permitted startups per day (using the conservative cold startup emission factor of 10.3 lb/startup described above), *see* Permit at 24 Condition II.A.6, and runs continuously during all non-startup hours of the year. Permit TSD Attachment B at 2 Tbl. B-2, Pet. Ex. 4. This calculation yielded total annual emissions from the 10 RICE units of 93.99 tpy from startup operations⁵ and 58.85 tpy from non-startup operations,⁶ for a total of 152.8 tpy. *Id.* Thus, even under the most conservative and unrealistic assumptions regarding unit operations,⁷ operation and maintenance of the SCR systems and the Permit’s five-startup-

⁴ The vendor has agreed to a “make-right guarantee” for this emission rate in its contract with TEP.

⁵ $(10.3 \text{ lb/startup} \times 5 \text{ startups/day/unit} \times 10 \text{ units} \times 365 \text{ days/year}) / 2000 \text{ lb/ton} = 93.99 \text{ tpy}$

⁶ $24 \text{ hr/day} - (5 \text{ startups/day} \times 0.5 \text{ hr/startup}) = 21.5 \text{ non-startup hr/day}$
 $(1.5 \text{ lb/hr} \times 21.5 \text{ hr/day} \times 10 \text{ units} \times 365 \text{ days/year}) / 2000 \text{ lb/ton} = 58.86 \text{ tpy}$

⁷ As discussed above, no RICE unit can possibly have more than one cold startup event per day. Assuming that each unit has one cold startup and four warm startups every day (which is still impossible, given that a cold startup only occurs after at least two days of inactivity), the units’ total potential startup emissions each year would only be 43.8 tpy, reducing the potential annual emissions to just 103.2 tpy.

$((10.3 \text{ lb/cold startup} \times 1 \text{ cold startup/day/unit}) + (3.5 \text{ lb/warm startup} \times 4 \text{ warm startups/day/unit})) \times 10 \text{ units} \times 365 \text{ days/year} / 2000 \text{ lb/ton} = 44.35 \text{ tpy}$

per-engine-per-day limitation ensure that the RICE units will emit significantly below the Permit limit of 170.0 tpy.

In sum, the Permit requires much more than a simple biannual stack test to demonstrate compliance with the NO_x emissions cap. It requires TEP to calculate NO_x emissions at each RICE unit and for all 10 units in the aggregate on a monthly basis, using conservative assumptions based on worst-case emission scenarios, and imposes stringent requirements for operation and maintenance of each unit's emission control equipment. Those provisions are more than sufficient to ensure that the NO_x emissions cap is practically enforceable—especially given that the RICE units are not physically capable of exceeding this cap (with a substantial margin of safety) under required operating conditions and limitations.

B. The Permit's Provisions Ensuring Compliance with the NO_x Emissions Cap Are Supported By Ample Agency Precedent.

Sierra Club's Petition is notably lacking in citation to EAB or other precedent supporting its argument that the NO_x emissions cap is not practically enforceable. This is unsurprising, given that EPA has routinely upheld permit provisions limiting a source's annual emissions that are substantially similar to the ones at issue here.

The only EAB case that Sierra Club summons in defense of its argument is *In re Peabody Western Coal Co.*, 12 E.A.D. 22 (EAB 2005). However, the County correctly rejected this case in its RTC as inapposite to the permit conditions at issue here. *See* RTC at 10, Pet. Ex. 6. As the County noted, *Peabody* only examined the sufficiency of annual source tests “in the context of permit actions and permit conditions which relied upon source tests *to the exclusion of other additional monitoring*, either of operation of the emission unit in question, or of control devices

being employed.”⁸ *Id.* *Peabody* involved a source owner’s request to limit its potential to emit fugitive dust from a coal mining facility, using AP-42 emission factors and assumed emission control efficiencies to estimate those uncontrolled fugitive dust emissions. 12 E.A.D. at 34-35. The EAB held the Region has properly rejected that request as not practically enforceable because unlike other permits that relied on annual calculations using emission factors to limit potential to emit, Peabody’s proposed limit did not include enforceable limits on the operation of emission control techniques. Here, the Permit includes enforceable limitations requiring TEP to operate and maintain SCR systems for each RICE unit and to monitor the operating parameters of those SCR systems. Additionally, the Board in *Peabody* expressed concern over the technical accuracy of the generic AP-42 emission factors that would be used to limit the source’s emissions. *Id.* at 34-41. Here, the unit-specific stack testing required by the Permit provides exactly what the Board found was missing in *Peabody*—a technically accurate estimate of emissions.

By contrast, there are many examples of EPA upholding limits on a source’s annual emissions based on compliance demonstration requirements similar to those in this Permit. In *Shell Offshore*, the Board considered a permit limiting NO_x and carbon monoxide (“CO”) emissions to 240 and 200 tpy, respectively, on a rolling 365-day basis. 15 E.A.D. at 552. Daily emissions were to be calculated by multiplying specified emission factors for each process by the recorded daily operation rate. *Id.* The permit also contained “conditions that require source-

⁸ The County properly rejected Sierra Club’s citations to previous EPA Title V permit objections for the same reason. *See* Letter from Deborah Jordan, EPA, to Jack Broadbent, Bay Area Air Quality Mgmt. District, at 9-10 (Oct. 8, 2004) (finding annual testing “is inadequate *because there is no way to determine* whether the control device is operating at a level that meets the applicable requirements during the rest of the year”) (emphasis added); Letter from Winston Smith, EPA, to Howard Rhodes, Florida Dep’t of Env’tl. Mgmt., at 7 (Nov. 1, 1999) (stating “results of an annual test *alone* would not constitute an adequate basis for the annual compliance certification” of continuous compliance with a pound per hour emission limit) (emphasis added).

wide recordkeeping and monitoring to ensure that Shell complies with the source-wide limits,” including monitoring operations, fuel consumption, and SCR operation. *Id.* at 552-53. The Board upheld this limit as practically enforceable, holding that “the continuous monitoring and recording of fuel usage and the application of source-test derived or specified emission factors have the practical effect of constraining Shell’s fuel use, thus ensuring compliance with the PTE limits.” *Id.* at 555. The EAB also noted the importance of the permit’s operational requirements involving installation of SCR to limit NOx emissions. *Id.* at 556-57. Further, the Board deferred to the permit issuer’s methodology for selecting emission factors for various processes covered by the annual emission limits, observing that “the development of emission factors for use in calculating daily emissions to determine compliance with PTE restrictions requires the sort of quintessential technical expertise the permit issuer possesses ... to which the Board will defer.” *Id.* at 558.

Similarly, in *Pope & Talbot*, the Administrator denied a petition to object to a Title V permit establishing a synthetic minor limit on a source’s annual CO emissions of 238 tons per year on a 12 month rolling period. *Pope & Talbot* at 4. Petitioners argued that the one-time performance testing every five years, combined with monthly emissions calculations based on fuel usage and prescribed CO emissions factors, was insufficient to ensure compliance with the annual CO limit. *Id.* at 4-6. The Administrator disagreed, holding that compliance with the CO emissions cap “is assured by the monitoring requirements for CO emissions using the equations prescribed,” along with the annual compliance certification, recordkeeping and reporting requirements, monitoring log requirement, annual records requirements, and requirements for prompt deviation reporting. *Id.* at 5-6; see *Shell Offshore*, 15 E.A.D. at 555 n.23 (recognizing

Pope & Talbot “underscores the Agency’s ability to exercise its discretion and its technical expertise in order to craft practically enforceable synthetic minor limits”).

Indeed, just a few months ago the Administrator denied a petition to object to annual CO emission limits in a Title V permit that relied on a similar compliance demonstration methodology to this Permit. Order Denying a Petition for Objection to Permit, *In re Yuhuang Chemical Inc. Methanol Plant*, Petition Nos. VI-2017-5 & VI-2017-13 (Adm’r Apr. 2, 2018) (“*Yuhuang*”). In *Yuhuang*, compliance with the permit’s annual CO emission limits for a steam methane reformer and an auxiliary boiler were to be determined based on calculations using emission factors derived from performance tests. The source owner was required to conduct performance tests at four evenly-spaced points over the unit’s anticipated operating range; develop operating-rate specific emission factors for each range; and calculate CO emissions monthly based on the actual operating rates of the unit and the emission factors corresponding to each operating range. *Id.* at 10. The petitioners claimed the permit issuer failed to demonstrate the annual performance testing would accurately estimate annual emissions, and that the permit must be modified to require a CEMS for CO emissions. *Id.* at 9. The Administrator concluded:

The Petitioners’ concerns regarding the stack test frequency are particularly unwarranted given the context in which these stack tests operate. Annual stack tests are not the sole means by which the facility demonstrates compliance. Rather, the Permit specifies that actual operating data will be used to calculate monthly emissions in between stack tests.

Id. at 11. The Administrator also noted the permit’s additional requirements for “proper maintenance and continuous monitoring of relevant operating parameters.” *Id.*

Here, the Permit’s provisions ensuring compliance with the annual NO_x emissions cap are consistent with the requirements upheld in *Shell Offshore*, *Pope & Talbot*, and *Yuhuang*—and in some ways are more restrictive than those requirements. Like those permits, TEP must assess its compliance with the NO_x emissions cap on an ongoing basis by calculating monthly

NOx emissions using technically accurate emission factors and recorded data on the source's actual fuel use. The Permit actually requires more frequent performance testing than the permit upheld in *Pope & Talbot*, which based the CO emission factors used for compliance demonstrations on performance tests conducted every *five* years. *See Pope & Talbot* at 5. The Permit's compliance provisions are also more conservative than those in *Yuhuang* because, while both permits require performance testing across a range of operating loads, this Permit requires TEP to establish unit-specific emission factors based on the highest results measured rather than providing for load-specific emission factors. And like the permits in all three cases, this Permit contains rigorous requirements to operate and maintain emission control equipment limiting the RICE units' NOx emissions while monitoring those controls' operational parameters—something the permit rejected in *Peabody* lacked. Thus, the Permit's NOx emissions cap is practically enforceable as required by EPA policy and precedent.

C. Sierra Club's Objections Lack Merit.

As noted in Section I above, Sierra Club's Petition does little more than reiterate the objections Sierra Club raised to the proposed NOx emissions cap provisions in its comments on the Draft Permit. *See* Pet. at 10-12 (directly quoting Sierra Club Comments). Because Sierra Club fails to demonstrate why the County's responses to these comments were clearly erroneous, review should be denied. *See Pio Pico*, 16 E.A.D. at 65.

The Petition does make passing reference to some potential areas of disagreement with the County's RTC. Because Sierra Club fails to develop these potential arguments beyond a single sentence or footnote, these objections cannot support Board review, particularly in light of the heavy burden of proof petitioners bear when challenging fundamentally technical matters like the enforceability of a permit limit. *See id.* (“[T]he petitioner bears the burden of demonstrating that review is warranted.”); *id.* at 64 (noting Board will defer to permit issuer on “matters that are

fundamentally technical or scientific in nature”). Further, even taken at face value these objections lack merit.

First, Sierra Club suggests that the County’s reliance on Permit provisions requiring TEP to monitor key operational parameters of its SCR systems is misplaced because “none of these parameters are used in estimating the facility’s NOx emissions.” Pet. at 12. As a practical matter, Sierra Club fails to explain how these parameters *could* be incorporated into “the formula to establish the ‘NOx emission factor.’” *Id.* More importantly, Sierra Club fails to explain or cite any authority showing why these parameters necessarily must result in data that would be included in calculating the RICE units’ emissions in order for them to be part of the mechanisms that ensure compliance with the NOx emissions cap. The permits upheld in *Shell Offshore*, *Pope & Talbot*, and *Yuhuang* all, as is the case here, calculated emissions solely as a function of specified emission factors and heat input or some other measure of source operations. Although these permits also included monitoring requirements designed to ensure that the required emission control technologies are continuously operating adequately, those monitoring requirements did not result in any data that would be included in those calculations.

That is because this is simply not the role that provisions governing control system operation and maintenance play in ensuring practical enforceability. Rather, the Permit’s requirements that TEP (1) install and operate SCR at each RICE unit, (2) maintain and operate those SCR systems in accordance with good engineering practices, (3) monitor key parameters that influence those systems’ control effectiveness, and (4) shut down any unit if ammonia injection to the SCR system fails, are all enforceable provisions that ensure the RICE units’ control equipment will continuously limit NOx emissions to a level consistent with those units’ performance during required testing. And as discussed above, the record shows that the RICE

units are not capable of exceeding the NO_x emissions cap under required operating conditions and limitations (i.e., proper operation and maintenance of SCR systems and no more than 5 startups per engine per day). As EPA has stated, “once an owner or operator has shown that the installed control equipment can comply with an emission limit, there will be a reasonable assurance of ongoing compliance with the emission limit as long as the emissions unit is operated under the conditions anticipated and the control equipment is operated and maintained properly.” 62 Fed. Reg. at 54,918. Thus, while these control equipment performance requirements do not yield data that must enter into the formula for determining NO_x emissions, they do ensure that the units’ performance during normal operations is consistent with their performance during emission testing and that the control equipment is operated and maintained properly.

Second, Sierra Club obliquely suggests that TEP will use continuous monitoring systems for NO_x emissions at the RICE units anyway, and that the County’s decision not to require the use of CEMS to demonstrate compliance with the NO_x emissions cap is therefore irrational. Pet. at 14 n.35 (stating “NO_x emissions from each RICE unit are continuously monitored ... but that continuous NO_x data is ignored without explanation in the determination of TEP’s compliance with the NO_x cap”). Sierra Club appears to be referring to the continuous NO_x process monitor that must be incorporated into each SCR system according to Condition II.A.1.c.iv. If so, Sierra Club misunderstands what a process monitor is and how it functions within the SCR system.

As an initial matter, TEP notes that Sierra Club failed to raise this argument in its comments, even though the Draft Permit contained provisions requiring use of a continuous NO_x process monitor for each RICE unit’s SCR system. *See* Draft Permit at 21 Condition II.A.1.c.iv, TEP Ex. 2. Accordingly, Sierra Club is barred from pressing this issue on appeal. 40 C.F.R.

§ 124.19(a)(4)(ii). If Sierra Club had raised this argument, the County would have had an opportunity to explain in its RTC why a NO_x process monitor and a CEMS are different types of equipment that serve very different purposes. In any event, there is sufficient information in the permitting record to demonstrate why Sierra Club's argument is misguided. *See* Hug Engineering, "Operating Manual: Control unit SNQ" (Mar. 6, 2013), TEP Ex. 3. The process monitor is an integrated part of the SCR and serves to regulate a closed loop feedback system that ensures proper operation of that control device. Serving a function similar to a car's cruise control, the process monitor measures NO_x concentrations at the SCR outlet and uses that input to adjust the SCR's ammonia injection rate in order to maintain desired NO_x removal levels. *Id.* at 1 (noting measured data "is used to calculate the amount of reactant to be injected upstream of the converter," "control[] the supply of air," and "monitor[] certain safety-relevant process values (pressure, temperature) in and above the converter"). Further, it is maintained, operated, and calibrated according to different standards than a CEMS and is not capable of meeting EPA's Part 60 or Part 75 data collection requirements. Accordingly, Sierra Club's suggestion that use of a NO_x process monitor is equivalent to continuous emissions monitoring to demonstrate compliance with an emission limit is baseless.

Third, Sierra Club takes issue in a footnote with the County's conclusion that the Permit "inherently produces an over-calculation of reported emissions and provides a greater assurance that the NO_x annual emission limit will not be exceeded." Pet. at 16-17 n.37. Sierra Club is wrong that this conclusion "is without support in the record." *Id.* To the contrary, as discussed above, there is ample record support to show that the Permit's NO_x emissions calculation methodology is conservative. Each RICE unit must calculate non-startup emissions using the highest emission factor observed during its performance test, even when operating at loads

associated with lower NOx emissions. Permit at 27 Condition II.D.2.c. Moreover, TEP must calculate startup emissions using the much higher cold startup emission factor for every startup event, even though it is impossible to undergo a cold startup at a RICE unit more than once in two days. Permit at 26 Condition II.C.9. And in any event, as explained above, the RICE cannot possibly exceed the NOx emissions cap even under worst-case emissions assumptions so long as the SCR systems are properly operated and maintained (as they are required and monitored to be) and the Permit's startup limitations are observed.

Sierra Club is also wrong that the County did not “describe the quantitative extent of the purported over-calculation.” Pet. at 16-17 n.37. The County explained that if a RICE unit has up to its five permitted startup events in a single day, the compliance determination methodology would apply the cold startup emission factor to each startup event, even though at most only one of those events could be a cold startup. RTC at 13, Pet. Ex. 6. Using the cold startup emissions value of 10.3 lb/startup and the warm startup value of 3.5 lb/startup, the County showed that the Permit would require that day's startup emissions to be reported as 51.5 lb of NOx even though actual startup emissions would be, at most, 24.3 lb—an over-calculation margin of approximately 50 percent. *Id.* While the County did not quantify the degree of over-calculation resulting from the Permit's approach to calculating non-startup NOx emissions—and could not have, given that it would depend on unit-by-unit performance test results—it had sufficient support to conclude that there would be over-calculation given that the Permit requires TEP to use the highest emission factor observed at the unit to calculate emissions at all loads. The County had no obligation to quantify the extent of any over-calculation, and the County's choice of emission factors and determination of the RICE units' potential to emit is entitled to

heightened deference as an exercise of discretion on a highly technical subject. *Shell Offshore*, 15 E.A.D. at 557, 558.

Finally, Sierra Club asserts without citation that any over-calculation of NOx emissions from the Permit's inherently conservative methodology cannot "erase the unknown extent of under-calculation caused by the inherently unrepresentative NOx monitoring method in the permit." Pet. at 16-17 n.37. Sierra Club offers no citation to the record describing what factors might cause TEP to under-calculate NOx emissions as a result of the Permit's monitoring methods. And there are none. Sierra Club does not even describe—much less quantify—how or why this "unknown extent" of hypothetical under-calculation exists or why it would outweigh the well-documented conservatism inherent in the Permit's NOx calculation methodology.

CONCLUSION

For the foregoing reasons, the Board should deny Sierra Club's petition for review of the Project's PSD permit.

DATE: September 28, 2018

Respectfully submitted,

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STATEMENT OF COMPLIANCE

I hereby certify that the foregoing Response of Permittee Tucson Electric Power to Petition for Review of Prevention of Significant Deterioration Permit for the Irvington/H. Wilson Sundt Generating Station complies with the requirements of 40 C.F.R. § 124.19(d)(1)(iv) & (d)(3). The word count is 7,635 words, using the word count function in Microsoft Word.

/s/ Makram B. Jaber
Makram B. Jaber

Date: September 28, 2018

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Response of Permittee Tucson Electric Power to Petition for Review of Prevention of Significant Deterioration Permit for the Irvington/H. Wilson Sundt Generating Station were served through electronic mail to the following recipients on this 28th day of September, 2018:

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