

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

IN THE MATTER OF:)
MISSISSIPPI LIME)
COMPANY)
)
)

Appeal No. PSD 11-____
Illinois PSD Permit No. 157863AAC

PETITION FOR REVIEW AND REQUEST FOR ORAL ARGUMENT

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INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), the Sierra Club, petitions for review of the conditions of the Prevention of Significant Deterioration (PSD) Permit Number 157863AAC, issued by the Illinois Environmental Protection Agency (“IEPA”) for a lime manufacturing plant. The permittee facility is owned by Mississippi Lime Company (MLC) and is located at 7849 Bluff Road, Prairie du Rocher, Randolph County, Illinois. The permit decision at issue by the IEPA is dated as December 30, 2010. A copy of the PSD permit is attached as Sierra Club **Exhibit 1**.

The State of Illinois is authorized to administer the PSD permit program pursuant to a delegation of authority by the United States Environmental Protection Agency (“EPA”). The Permit authorizes MLC to build and operate various emission sources, including two large coal-fired lime kilns. Because the permit fails to include necessary permit conditions, make certain necessary findings, is based on various erroneous legal interpretations and faulty conclusions, lacks a sufficient basis in the record, and raises important policy considerations that the Board should address, review is appropriate pursuant to 40 C.F.R. pt. 124.

THRESHOLD PROCEDURAL REQUIREMENTS

Sierra Club satisfies the threshold requirements for filing a petition for review under Part 124. Sierra Club has standing to petition for review of the permit decision because Sierra Club and its members participated in the public comment period on the draft permit. 40 CFR § 124.19(a). *See* Comments on behalf of the Sierra Club, attached as Sierra Club **Exhibit 2**; and Transcript of Public Hearing (Nov 18, 2010). The issues raised by Sierra Club below were raised with IEPA during the public comment period, are directly related to the IEPA's response to public comments, or were not reasonable ascertainable during the comment period. Consequently, the Board has jurisdiction to hear Sierra Club's timely request for review.

ISSUES PRESENTED FOR REVIEW

Sierra Club respectfully requests Board review of the following issues:

- (1) Illinois EPA failed to satisfy 42 U.S.C. § 7475(a)(3)(B) and 40 C.F.R. § 52.21(k)(1) because its analysis for 1-hour Sulfur Dioxide (“SO₂”) National Ambient Air Quality Standard (“NAAQS”) impacts used a so-called “significant impact level” (SIL) that is unsupported in the record, is inconsistent with the SIL that U.S. EPA has directed federal permitting authorities to use, and is larger than the SIL that IEPA, itself, identified.
- (2) Illinois EPA failed to satisfy 42 U.S.C. § 7475(a)(3)(B) and 40 C.F.R. § 52.21(k)(1) because its analysis for 1-hour SO₂ NAAQS impacts assumed a maximum hourly emission rate that is not an enforceable limit and, therefore, does not represent the worst-case maximum hourly emission rate that could occur from the facility.
- (3) Illinois EPA failed to create a record or provide sufficient explanation for the Best Available Control Technology (BACT) limits for the lime kilns, including:
 - a. Failing to provide a sufficient evidentiary basis in the record for, or sufficiently explain why, demonstrated emission rates at other rotary lime kilns should not be used to set Best Available Control Technology (BACT) limits in this case.
 - b. Failing to support with evidence and a sufficient analysis and explanation in the record why the so-called “safety margins” included in limits for SO₂, nitrogen oxides and particulates were necessary and why the particular margins included in the limits here were selected.
 - c. Providing a response to comments that identifies the fuel sulfur content that contradicts the assumptions underlying the permit’s BACT limit for SO₂ and requires a lower BACT limit.
- (4) Additionally, Sierra Club requests that if the MLC permit is remanded for any reason, that IEPA be directed to comply with all standards and requirements in effect at the time of permit reissuance following remand.

STATEMENT OF FACTS

Lime manufacturing involves roasting limestone at high temperatures to convert the calcium carbonate (CaCO_3) in the stone into lime or calcium oxide (CaO). Response to Comments at 2 (December 30, 2010), attached as **Exhibit 3**. MLC proposes to construct a plant that contains two kilns that would burn coal and petroleum coke to provide the heat for that roasting process. *Id.* The limestone supply for the kilns would come from either an adjacent quarry or some other undisclosed source. *Id.*

On October 27, 2008, MLC applied for a permit to construct a lime manufacturing plant in Prairie du Rocher, Illinois. *See* Permit (Exhibit 1) at 1. IEPA released a draft permit and Statement of Basis (Project Summary) for the facility on October 4, 2010. *See* IEPA, Project Summary for an Application for Construction Permit/PSD Approval from Mississippi Lime Company (October 4, 2010), attached as **Exhibit 4**. A public hearing was held on November 18, 2010, and the comment period closed December 20, 2010. Response to Comments (Exhibit 3) at 2. Sierra Club and many others submitted comments. *See* Exhibit 2; Transcript of Public Hearing (Nov. 18, 2010).

IEPA issued its proposed final permit decision a mere ten days later, on December 30, 2010. *See* Permit (Exhibit 1). This was an unprecedented turnaround time for the agency, and probably not coincidentally, occurred just before new Greenhouse Gas permitting requirements took effect on January 2, 2011. *See e.g.*, 75 Fed. Reg. 31,514, 31516 (June 3, 2010) (establishing “tailoring” to exclude certain smaller sources and noting that for larger sources PSD permitting and BACT limits apply to greenhouse gas emissions as of January 2, 2011). In its haste to issue the permit, IEPA made significant errors as set forth herein.

REQUEST FOR ORAL ARGUMENT

Petitioner respectfully requests oral argument in the above-captioned matter. Oral argument may assist the Board in its deliberations on the issues presented by the. Especially if the Board has questions of Sierra Club or the IEPA regarding the issues raised herein, Sierra Club believes that that oral argument could materially assist in the Board's resolution of these issues.

ARGUMENT

I. ILLINOIS EPA APPLIED AN UNLAWFUL AND UNSUPPORTED “SIL” TO EXCUSE PREDICTED VIOLATIONS OF THE 1-HOUR SO₂ NAAQS.

A. Background on the 1-hour SO₂ NAAQS.

The primary SO₂ NAAQS is 75 parts per billion, based on a 1-hour average. 75 Fed. Reg. 35,520, 35,592 (June 22, 2010) (to be codified at 40 C.F.R. § 50.17). On August 23, 2010, EPA released a guidance memorandum detailing how EPA (and delegated permitting authorities such as IEPA) would implement the new 1-hour SO₂ NAAQS for PSD permitting. *See* Memorandum from Anna Marie Wood, Acting Director, Air Quality Policy Division, U.S. EPA, to Regional Air Division Directors (August 23, 2010) (“1-Hour SO₂ Guidance”), attached to Memorandum from Stephen D. Page, Director, Office of Air Quality Planning and Standards, U.S. EPA, to Regional Air Directors, Re: Guidance Concerning the Implementation of the 1-hour SO₂ NAAQS for the Prevention of Significant Deterioration Program (August 23, 2010), attached as **Exhibit 5**¹. The 1-Hour SO₂ Guidance contains two specific points relevant to this case. First, it set forth the “significant impact level” (“SIL”) that EPA will use when it evaluates applications and issues permits under the federal PSD program...” 1-Hour SO₂ Guidance at 2, 4-6. Second, it confirmed that “[b]ecause compliance with the new SO₂ NAAQS must be demonstrated on the basis of a 1-hour averaging period, the reviewing authority should ensure that the source’s PSD permit defines a maximum allowable hourly emissions limitation for SO₂...” *Id.* at 7. The guidance explains that enforceable maximum 1-hour limits are necessary “because they are the foundation of the air quality modeling demonstration relative to the 1-hour SO₂ NAAQS.” *Id.*

¹ Available at <http://www.epa.gov/region7/air/nsr/nsrmemos/appwso2.pdf>.

B. Background on SILs.

No new source may be constructed (and no modification can occur) unless an analysis of air quality impacts shows that the facility will not cause or contribute to a violation of any NAAQS. 42 U.S.C. § 7475(a)(3); 40 C.F.R. § 52.21(k)-(m); *In re Prairie State Generating Co.*, 13 E.A.D. 1, 92 (EAB 2006). “SILs” have been used in two ways. First, the permittee facility’s emissions can be modeled and compared to SILs as a screening analysis to determine if further analyses are necessary. *Prairie State*, 13 E.A.D. at 92 (citing U.S. EPA, *New Source Review Workshop Manual* at C.24 (Oct. 1990) (“NSR Manual”); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 149 (EAD 1999)). If the modeled impacts are less than the SILs, further analyses are generally not required and the facility is not considered to contribute to any NAAQS violations.

Second, permit authorities have sometimes used SILs as a last step in the process: to excuse a permittee’s “culpability” in modeled NAAQS (or increment) violations. Where the projected ambient air quality impacts are greater than the SIL in the screening analysis, and a full cumulative impact analysis is performed, a so-called “culpability analysis” determines whether the facility’s contribution to modeled NAAQS violations are above the SIL at the specific location and time of a modeled violation. *See e.g., Prairie State*, 13 E.A.D. at 103; *NSR Manual* at C.52. Only this “culpability analysis” use of a SIL is at issue in this case.

C. IEPA’s Culpability Analysis for 1-Hour SO₂.

1. The MLC Plant Will Contribute To 1-Hour SO₂ Impacts of 2757.4 ug/m³, Which Far Exceeds The 195 ug/m³ NAAQS.

The applicant submitted modeling analysis on July 30, 2010, which demonstrated maximum predicted 1-hour SO₂ impacts of 2757.4 ug/m³, which represents over 1400% of the 1-Hour SO₂ NAAQS. *See* Email from Dana Sheahen, Shell Engineering, to Matt Will, attaching Mississippi

Lime Prairie du Rocher SO₂ 1-hour Modeling at 000018 (July 30, 2010), attached as **Exhibit 6**.

The company then performed a “Culpability Analysis” to “remove from consideration all hours at individual receptors where the lime plant project was predicted to contribute less than 10 ug/m³.”

Id. at 000019. After limiting the model results to those receptors and hours when the MLC kilns contributed more than 10 ug/m³ to the NAAQS violations, the company predicted a total NAAQS impact of 185.4 ug/m³. *Id.* at 000022. The company’s summary, and difference between the cumulative impact analysis before and after applying the 10 ug/m³ SIL is:

Table 3-5 Predicted full impact SO₂ 1-hr summary

Prairie du Rocher Lime Plant Project Modeled 1-hr SO ₂ Concentration Values (µg/m ³)					
Lime Plant Only	Lime Plant + Inventory before Culpability Analysis	Lime Plant + Inventory after Culpability Analysis	Ambient Background	Total Predicted Concentration	NAAQS
11.0	2757.4	11.4	174	185.4	195

Id. IEPA apparently adopted this analysis, wholesale, in its Project Summary (statement of basis) and Responsiveness Summary (response to comments). *See* Exhibit 3 at 30-31; Exhibit 4 at 12.

2. Sierra Club Preserved This Issue.

Sierra Club’s comments specifically raised the issue of 1-hour SO₂ NAAQS compliance and IEPA’s erroneous “culpability” analysis. Sierra Club’s comments specifically noted:

The July 30, 2010, submittal contained a 1-hour SO₂ NAAQS modeling analysis. That analysis predicted a maximum modeled impact of 2757.4 ug/m³. This far exceeds the applicable NAAQS, so the applicant conducted a so-called “culpability analysis” to assess “if the lime plant PSD project contributed significantly to the exceedance of the standard at the exact time and location where the exceedance was predicted by modeling.” That analysis assumed that the kilns did not contribute (above a de minimum amount) to any predicted violation of the NAAQS as long as the kiln’s contribution was less than 10 ug/m³. However, EPA guidance recommends using a significant impact level of only 3 ug/m³ [*sic*, ppb] and notes that a SIL constituting 5% of a NAAQS

(or more) is too high to be considered de minimus. The 10 ug/m³ SIL that the applicant used is over 5% of the NAAQS. It is not clear from the record, but it appears very likely that if a 3 ug/m³ [*sic*, ppb] SIL is used, the plant contributes significant amounts to violations of the 1-hour SO₂ NAAQS.

Sierra Club Comments (Exhibit 2) at 4.

IEPA responded to these comments by asserting that the use of a 10 ug/m³ SIL was appropriate:

When the 1-hour NAAQS for SO₂ was adopted by USEPA, the applicant was required to model the proposed plant to determine compliance with this new standard. There are several steps in the analysis according to USEPA guidelines. First, the impact from the proposed source is assessed. Then, the model is run also including sources within 100 kilometers of the proposed plant. If this air quality analysis predicts violations of the NAAQS, and the applicant can show that the emissions increase from the proposed source will not have a significant impact at the point and time of any modeled violation, then the application may proceed.

The initial 1-hour SO₂ model predicted a value of 2757.4 ug/m³. Since there was not yet a SIL developed for the new 1-hour SO₂ standard, the Illinois EPA and USEPA Region V recommended to the applicant that the modeling methodology provided by USEPA for the new 1-hour NO₂ standard be adapted for SO₂. Therefore, the applicant used a screening level of 10 ug/m³ (which corresponds to 4 ppb). The predicted high concentration after this —culpability analysis was only 11.4 ug/m³ which, when combined with the background concentration, is below the NAAQS.

Responsiveness Summary (Exhibit 3) at 30-31. Therefore, the proper SIL and IEPA's "culpability" analysis issue was raised and preserved for review by the Board.

3. IEPA's Use of a 10 ug/m³ SIL In The 1-Hour SO₂ Culpability Analysis Was Clearly Erroneous and an Abuse of Discretion.

Board review and remand is appropriate for the IEPA's unlawful and unjustified use of a 10 ug/m³ SIL to excuse modeled violations of the 1-Hour SO₂ NAAQS. The IEPA's use of a 10 ug/m³ SIL here is erroneous for three separate reasons. First, there is no legal basis in this case for

using a SIL in the last step of a NAAQS analysis to excuse modeled violations. Second, even if the use of a SIL was lawful, IEPA provides no independent basis for a 10 ug/m³ SIL and, in fact, used two different SILs for 1-Hour SO₂. Third, IEPA failed to acknowledge and follow U.S. EPA's guidance directing that a 3 ppb (7.9 ug/m³) SIL be used.

(a) The Use of A SIL In A “Culpability Analysis” Is Unlawful Unless IEPA Demonstrates On The Record That Regulating Impacts Below The SIL Is “Pointless” and “Futile.”

As explained above, the NAAQS impacts for 1-hour SO₂ are predicted to be 2757.4 ug/m³, which far exceeds the 1-hour NAAQS of 195 ug/m³. Only after IEPA decided to ignore modeled violations where the MLC kilns contribute less than 10 ug/m³ does the analysis project impacts lower than the NAAQS. Without this so-called “culpability analysis,” the permit could not be issued until the proposed kilns' emissions are reduced so that it does not contribute to projected NAAQS violations.

There is no question that the statute and regulation applicable here prohibit construction of any source that will “cause or contribute” to any violation of a NAAQS. 42 U.S.C. § 7475(a)(3) (“No major emitting facility... may be constructed in any area... unless... the owner or operator of such facility demonstrates... that emissions from construction or operation of such facility will not cause, or contribute to, air pollution in excess of any... national ambient air quality standard”); 40 C.F.R. §§ 52.21(d)(2) (“No concentration of a pollutant shall exceed... The concentration permitted under the national primary ambient air quality standard...”), 52.21(k) (“The owner or operator of the proposed source... shall demonstrate that allowable emission increases from the proposed source... would not cause or contribute to air pollution in violation of: (A) Any national ambient air quality standard...”); *see also Massachusetts v. EPA*, 549 U.S. ___, 127 S. Ct. 1438, 1460 (2007) (holding that the “repeated use of the word ‘any,’” as Congress did in § 7475(a) by prohibiting

emissions that contribute to pollution “in excess of any... [NAAQS] in any air quality region,” demonstrates that the statutory language has “sweeping” protective reach). The plain text contains no qualification that the contribution by the permittee facility be above any minimum concentration. In fact, on their face, the plain language of the statute and regulation prohibit any contribution, whatsoever, to any NAAQS violation. *See also* 42 U.S.C. § 7473(a) (providing that for SO₂ and PM, SIPs must “contain measures assuring that... maximum allowable concentrations of, such pollutant shall not be exceeded.”).²

However, contrary to the Act’s plain language, EPA has historically applied SILs to air impact analyses based, generally, on the legal principle that *de minimis* exemptions may be created where there is no value (or only trivial value) in regulation. *In re Prairie State Generating Co.*, 13 E.A.D. 1, 103-09 (EAB 2006); *see also* 40 C.F.R. § 51.165(b)(2) (establishing SILs for only certain pollutants and averaging times, and only for PSD programs other than 40 C.F.R. § 52.21, that are approved as part of state implementation plans); 75 Fed. Reg. 64,864, 64,866/3 (Oct. 20, 2010) (“Historically, EPA has allowed the use of several types of screening tools to facilitate implementation of the preconstruction review process to reduce the permit applicant’s burden and streamline the permitting process for *de minimis* circumstances. These tools include... SILs...”), 64,890/3 (“It is EPA’s longstanding policy to allow the use of the SILs as *de minimis* thresholds under the NSR programs at 40 CFR 51.165(b) and part 51, Appendix S, to determine whether the predicted ambient impact resulting from the emissions increase at a proposed major new stationary source or modification is considered to cause or contribute to a violation of the NAAQS.”); *NSR Manual* at C.52; Memorandum from Gerald A. Emison, Director, U.S. EPA OAQPS, to Thomas J.

² To the extent Congress intended any exceptions from the prohibition on causing any violation of a NAAQS, it did so through 42 U.S.C. § 7475(b) for sources emitting fewer than 50 tons of emissions per year.

Maslany, Director, Air Mgmt. Div. (July 5, 1988); Memorandum from Richard G. Rhodes, Director, Control Programs Development Div., U.S. EPA to Alexandra Smith, Director, Air & Haz. Materials Div., U.S. EPA Region 10 (Dec. 16, 1980). EPA most often cites the 32-year old case of *Alabama Power Co. v. Costle*, 636 F.2d 323, 400 (D.C. Cir. 1979), as the legal authority for applying a *de minimis* exemption to the otherwise applicable statutory (or regulatory) language. *Prairie State*, 13 E.A.D. at 104-05; 75 Fed. Reg. at 64,891; *see also Sur Contra La Contaminacion v. EPA*, 202 F.3d 443, 448-49 (1st Cir. 2000). In this case, the plain language of the Act, as well as judicial limitations on the *de minimis* doctrine, preclude reliance on SILs allow IEPA's "culpability analysis" for SO₂.

The *de minimis* doctrine is narrow and is "[p]redicated on the notion that 'the Congress is always presumed to intend that pointless expenditures of effort be avoided,'" and that authority to avoid statutory coverage in such instances "is inherent in most statutory schemes, by implication." *Shays v. FEC*, 414 F.3d 76, 113-114 (D.C. Cir. 2005) (quoting *Ass'n of Admin. Law Judges v. FLRA*, 397 F.3d 957, 962 (D.C. Cir. 2005)). Thus, only where regulation would be pointless can the doctrine apply to avoid "futile application" of a statute. *New York v. EPA*, 443 F.3d 880, 888 (D.C. Cir. 2006)³. The D.C. Circuit in *Shays v. FEC* explains the very narrow circumstances when the doctrine can be applied:

First, *de minimis* exemption power does not extend to extraordinarily rigid statutes. By promulgating a rigid regime, Congress signals that the strict letter of its law applies in all circumstances, thus rebutting the presumption against pointless applications. Second, even absent rigidity, the authority to create these exceptions does not extend to a situation where the regulatory function does provide benefits, in the sense of

³ The D.C. Circuit's decision in *New York v. EPA*, does not determine the validity of the *de minimis* doctrine to the facts in that case because, as it recognized, EPA's defense of the replacement rule at issue was not based on the *de minimis* doctrine. 443 F.3d at 888.

furthering regulatory objectives, but the agency concludes that the acknowledged benefits are exceeded by the costs. Instead, situations covered by a *de minimis* exemption must be truly *de minimis*. That is, they must cover only situations where the burdens of regulation yield a gain of trivial or no value, for otherwise the exemption reflects impermissible second-guessing [of] Congress's calculations, as opposed to avoidance of absurd or futile results.

414 F.3d at 114 (internal quotes and citations omitted). These principles foreclose reliance on the *de minimis* doctrine in this case. First, the relevant statute here is in fact rigid in mandating a showing that each permit applicant to show that its proposed source “will not cause, or contribute to, air pollution in excess of any” NAAQS. The statute does not allow for any exceptions to this mandate. Second, because protection of the NAAQS is the Act’s most central requirement, IEPA cannot possibly claim that emissions causing or contributing to violations of the NAAQS are *de minimis*. Put another way, pollution that contributes to a NAAQS violation (albeit an amount smaller than the SIL) cannot possibly be shown to have “no appreciable effect” on regulation, and therefore to be “pointless.” *See Assoc. of ALJs*, 397 F.3d at 962 (characterizing *de minimis* as something having “no appreciable effect” and exempting “pointless expenditure of effort”); *Alabama Power*, 636 F.2d 360 (“Courts should be reluctant to apply the literal terms of a statute to mandate *pointless* expenditures of effort.” (emphasis added)); *see also* 61 Fed. Reg. 38,250, 38,292/1 (July 23, 1996) (“Administrative agencies may exempt ‘truly *de minimis*’ situations from a statutory comment ‘when the burdens of regulation yield a gain of trivial or no value.’”). Absent a SIL, a permittee contributing any amount to a NAAQS violation must reduce its pollution to eliminate its contribution to the violation. As a result, application of a SIL cannot be justified based on the *de minimis* doctrine.

Further, the facts in this case demonstrate that there is a definite and identifiable benefit to prohibiting MLC from contributing to any NAAQS violation, not just those violations where its contribution exceeds 10 ug/m³. Without IEPA's 10ug/m³ SIL, MLC must reduce its emissions sufficiently to avoid contributing to *any* NAAQS violation; or to a level less than 50 tons per year. 42 U.S.C. § 7475(a)(3), (b); 40 C.F.R. § 52.21(k). Alternatively, MLC could obtain emission reductions from other nearby pollution sources so that the cumulative impacts from those sources and MLC would be below the NAAQS. In any case, the result would be additional pollution reduction, which is not a “pointless,” “trivial,” or “futile” result. Instead, it furthers Congress' pollution-reduction purpose in the Clean Air Act. 42 U.S.C. §§ 7401, 7410(a), 7470.⁴ Use of SILs to avoid the consequences of a NAAQS violation (reduced emission rates or permit denial) is an inappropriate and unlawful application of the *de minimis* doctrine in this case.

Moreover, to the extent that NAAQS violations must be eliminated—even when impacted by contributions lower than the SIL—use of a SIL is inconsistent with the *de minimis* doctrine. Indeed, EPA has conceded that there is a benefit in preventing even relatively small contributions to violations of NAAQS, including those contributions below the SIL. *See e.g.*, 75 Fed. Reg. at 64,892/1 (directing that “notwithstanding the existence of a SIL, permitting authorities should determine when it may be appropriate to conclude that even a *de minimis* impact will ‘cause or contribute’ to an air quality problem and seek remedial action from the proposed new source or

⁴ Moreover, at the “culpability impacts” analysis stage, any argument for avoiding the use of agency resources by applying a SIL evaporates because the facility has already progressed to the last stage of the analysis and the agency resources have already be expended. Unlike the use of a SIL as a screening tool at the first step, where it arguably saves resources where it avoids the cumulative impacts analysis, its use in a culpability analysis has the opposite effect. *See e.g.*, 72 Fed. Reg. at 54,139/2 (noting that the justification of a SIL is to avoid a cumulative impact analysis and modeling that will yield trivial or no information about the permittee facility). Instead of avoiding the burden of modeling and a cumulative impact analysis, the “culpability analysis” actually follows the modeling and cumulative impacts analysis and adds yet another step at the end of the process. In fact, the “culpability analysis,” itself, is a significant use of resources that can exceed the resources spent in the first two steps since the modeling results have to be parsed for each receptor and time period to analyze contributions from the permittee source.

modification.”), 64,894/1 (“we have historically cautioned states that the use of a SIL may not be appropriate when a substantial portion of any NAAQS or increment is known to be consumed.”). In other words, because NAAQS violations are never acceptable and EPA has cautioned that where a NAAQS violation is detected it must be addressed, even where a permittee source’s contributions are below the SIL, it cannot be said that avoiding even small contributions to NAAQS violations is “pointless” or “futile.” *See also NSR Manual* at C.52 (stating that where NAAQS violations are predicted but the permittee contributes a concentration below the SIL, “the agency must also take remedial actions through applicable provisions of the state implementation plan to address the predicted violation(s).”); *Prairie State*, 13 E.A.D. at 107 n.122 (same); Ex. 5 at 000007 n.3 (directing permitting authorities to “determine the nature” and to “mitigate... accordingly” any NAAQS violation determined in a cumulative air quality analysis even where the permittee source is excused because its impacts are below the SIL). EPA’s recognition that all NAAQS violations are problematic—even those that exceed the NAAQS by no more than the SIL—scotches any argument that the SIL represents an insignificant amount of air pollution.

The *de minimis* doctrine cannot justify IEPA’s issuance of a permit to MLC, which will contribute to violations of the SO₂ NAAQS. Remand is appropriate.

(b) Even If The Use of a SIL-Culpability Analysis Based on a *De Minimis* Concentration Were Lawful, IEPA Has Not Justified The Use of 10 ug/m³.

As noted above, SILs can only be justified (if at all) based on *de minimis* precedents. *See* 72 Fed. Reg. 54,120, 54,139/2 (Sept. 21, 2007) (“The concept of a significant impact level is grounded on the *de minimis* principles described by the court in *Alabama Power Co. v. Costle*, 636 F.2d 323, 360 (D.C. Cir. 1980).”); Those precedents require a specific, on the record, determination by the agency that regulation of impacts below the chosen SIL has no appreciable

effect and would be a pointless exercise in regulation. *Alabama Power*, 636 F.2d at 360 ("Determination of when matters are truly de minimis naturally will turn on the assessment of particular circumstances, and the agency will bear the burden of making the required showing"); *Greenbaum v EPA*, 370 F.3d 527, 534 (6th Cir. 2004) (same); *Ober v. Whitman*, 243 F.3d 1190, 1195 (9th Cir. 2001) ("[The agency] must cite information to explain why it exempted certain sources as de minimis, and without data ...we owe no deference to [the agency's] line-drawing... We therefore defer to the agency's judgment only if [the agency] has provided a full explanation of its de minimis levels and its application of those levels to sources of pollution." (internal quotes and citations omitted)); *Natural Resources Defense Council, Inc. v. EPA*, 966 F.2d 1292, 1306 (9th Cir. 1992) (rejecting de minimis exemption because of "lack of data" to show that regulation would be of "trivial or no value"); *Environmental Defense v. EPA*, 636 F.2d 1267, 1284 n.46 (D.C. Cir. 1980) (holding that if the agency relies on a de minimis principle, because regulation would have only negligible effects, the agency must "state the reasons for exercising this limited exemption authority" in the record). Courts have been unequivocal that the agency relying on a SIL bears the burden of making the requisite showing, on the particular circumstances of the case, that the excluded regulatory coverage is truly *de minimis*. *Ky. Waterway Alliance v. Johnson*, 540 F.3d 466, 491-92 (6th Cir. 2008) (Cook Concurring, expressing opinion of majority of the Court).

Here, IEPA accepted the applicant's use of a 10 ug/m³ SIL in the SO₂ "culpability analysis," but provided no explanation and no demonstration in the record to meet its heavy burden to show that the *de minimis* doctrine is met at the 10 ug/m³ SIL level. There is no basis in the record for IEPA's conclusion that the predicted NAAQS violations are not being caused or contributed-to by MLC. Specifically, the record lacks:

- (a) a specific, on the record determination by IEPA;

- (b) demonstrating that regulation of impacts below the chosen SIL has no appreciable effect; and
- (c) demonstrating that the regulation of impacts below 10 ug/m^3 would be a pointless exercise in regulation.

Alabama Power, 636 F.2d at 360; *see also Ky. Waterway Alliance*, 540 F.3d at 492 (reviewing a *de minimis* assertion by EPA under the Clean Water Act, and requiring agency to “aim its analysis at the legally operative question: will the extent to which various emitters avail themselves of the exemptions result in significant, rather than *de minimis*, degradation?”). Without meeting its burden to demonstrate that 10 ug/m^3 is truly *de minimis*, IEPA cannot ignore the modeled NAAQS violations that MLC contributes to.

In fact, IEPA was also inconsistent in selecting and applying a 1-hour SO_2 SIL. In its Project Summary (statement of basis), IEPA used a 1-hour SO_2 SIL of 7.9 ug/m^3 and indicated that level to represent “significant under the PSD rules, rather than *de minimis* or insignificant.” Project Summary (Exhibit 4) at 11 and Table 1. However, in the “Culpability Analysis” it inexplicably used the higher, and less protective, 10 ug/m^3 as the SIL. *See* Response to Comments, Exhibit 3, at 30-31. There is no explanation for IEPA’s use of a higher concentration in the “culpability analysis” (10 ug) than the concentration IEPA deemed to be “significant under the PSD rules” and not *de minimis* (7.9 ug).⁵

Remand is appropriate to require IEPA to create a record demonstrating that the SIL level it uses in the Culpability Analysis, if any, meets the requirements of the *de minimis* doctrine.

⁵ The 7.9 ug/m^3 SIL is also not justified in the record. To the extent IEPA intends to rely on this SIL, instead of 10 ug/m^3 , it must still justify it as meeting the criteria under the *de minimis* doctrine.

(c) The SIL Used in The Culpability Analysis Conflicts With EPA's Directions To Federal Permitting Authorities Such As IEPA.

As noted above, U.S. EPA has issued guidance directing federal permitting authorities to use a 1-hour SO₂ SIL of no more than 3 ppb (7.9 ug/m³). Ex. 5 at 000007 (“we are providing an interim SIL of 3 ppb, which we intend to use as a screening tool for completing the required air quality analyses for the new 1-hour SO₂ NAAQS under the federal PSD program at 40 CFR 52.21.”) EPA derived the 3 ppb SIL based on 4% of the 1-hour NAAQS. *Id.* at 000008. Using a default 4% SIL is consistent with the SILs provided in guidance for the 1-hour NO_x NAAQS and those used in 1980 to establish the PSD program’s significance levels.⁶ *Id.* (citing 45 Fed. Reg. 52,676, 52,705-10 (Aug. 7, 1980).) EPA has noted that any contribution above 4% of the NAAQS is too much to consider “insignificant.” 45 Fed. Reg. 52,676, 52,707/3 (Aug. 7, 1980). In fact, during EPA’s 1980 rulemaking considerations of *de minimis* impacts, it categorically rejected impacts above 5% as being *de minimis*. *Id.* (“levels higher than five percent of the primary standard were not seriously considered...”). Yet, IEPA’s 10 ug/m³ SIL in this case represents over 5% of the 1-hour SO₂ NAAQS.

IEPA’s unsupported and unlawful decision to excuse NAAQS violations where MLC contributes less than 10 ug/m³ is clearly erroneous and an abuse of discretion. It conflicts with EPA’s specific directive to federal permitting authorities, such as IEPA’s delegated program, to use 7.9 ug/m³ and EPA’s repeated conclusions that any SIL higher than 4% of the NAAQS is too high. Remand is appropriate.

⁶ While these prior assertions by EPA indicate that 4% is the maximum that can be considered *de minimis*, Sierra Club does not agree that these assertions were adequately supported to qualify as *de minimis* under controlling precedents.

II. IEPA ERRONEOUSLY SET LIMITS BASED ON 3-HOUR AVERAGES FOR SO₂ AND NO_x TO PROTECT 1-HOUR NAAQS.

U.S. EPA adopted new NAAQS for NO_x and SO₂ based on 1-hour averages. 75 Fed. Reg. 6474 (Feb. 9, 2010); 75 Fed. Reg. 35,530 (June 22, 2010). MLC's application included modeling purporting to demonstrate compliance with these standards, based on an analysis of hourly modeling results. *See* Exhibits 6 and 7. The permit, however, does not establish maximum *hourly* emission rates for NO_x and SO₂. Rather, it establishes Best Available Control Technology (BACT) limits based on 24-hour averages and maximum "Short-Term Limits" based on a *three-hour* averages. Permit (Exhibit 1) at p. 11 § 2.1.3-2.b. and p. 15, § 2.1.6.a. Because emissions can vary from hour to hour, while remaining within a 24-hour or 3-hour average, these limits do not ensure that maximum hourly emissions will be higher than the rates set as limits averaged over longer periods.

A. Sierra Club Preserved This Issue for Review.

Sierra Club's public comments noted that "NAAQS modeling must be done based on worst-case operations" and that emission limits should be taken into account when defining worst-case operations only to the extent that "the averaging time matches the model inputs..." Sierra Club Comments (Exhibit 2) at 4. Additionally, Sierra Club commented that the limits in the permit for SO₂ and NO_x are averaged over periods of 3-hours, or longer, which "do[] not ensure compliance with a 1-hour standard" for NO_x and SO₂. *Id.* at 12. Therefore, Sierra Club adequately preserved the issue that permit limits used for NAAQS compliance demonstration for pollutants subject to 1-hour NAAQS must be set based on a 1-hour averaging period.

B. IEPA's Response to Comments.

IEPA responded to Sierra Club's comment regarding the appropriate averaging time for emission limits needed to protect 1-hour NAAQS standard as follows:

The [3-hour] short-term emission limits for the kilns in Condition 2.1.6(a) for SO₂ and NO_x also have an appropriate averaging time. As observed by this comment, the one-hour NAAQS for SO₂ and NO_x were only recently adopted by USEPA and were not considered by historic USEPA guidance for PSD modeling. The preliminary experience of many state agencies is that the traditional approach to modeling can be overly conservative when used with these new standards, providing results that overstate impacts to such a degree that they cannot be considered credible. In particular, the dispersion modeling would assume that three worst case conditions occur simultaneously, maximum background ambient air quality hourly concentrations from a year of monitoring, maximum short-term emission rates from existing sources, and worst-case hourly meteorological conditions for dispersion of emissions. Given these circumstances, it is appropriate to set short-term limits for SO₂ and NO_x on a three hour averaging time to ameliorate for the unrealistic nature of the modeling process as it acts to overstate impacts... The SO₂ and NO_x emission of the kilns are not controlled by natural scrubbing and process measures that cannot catastrophically fail, resulting in a scenario approaching the one postulated in this comment.

Response to Comments (Exhibit 3) at 33.

C. Review and Remand Are Appropriate to Ensure that 1-Hour NO_x and SO₂ NAAQS Are Protected Based On The Maximum Allowable Hourly Emission Rates.

Emission rates can fluctuate and, therefore, averages over time do not necessarily represent the maximum emission rate during a shorter period of time. This is especially problematic when emission limits are averaged over periods longer than the short-term air quality standards that those limits are supposed to protect. Therefore, the Modeling Guidelines require that the maximum allowable emission rate be used to model for PSD permitting. 40 C.F.R. pt. 51, Appx. W Table 8-2. The Guidelines further require that emission limits be set at the maximum emission rate that was

modeled for the most stringent air quality standard. 40 C.F.R. pt. 51, Appx. W § 10.2.3.1.a (“Emission limits should be based on concentration estimates for the averaging time that results in the most stringent control requirements.”). EPA’s *NSR Manual* similarly requires that NAAQS compliance demonstration modeling be conducted at the maximum allowable operating conditions over the averaging period represented in the NAAQS. *NSR Manual* at C.45; *see also e.g., In re Northern Michigan University*, 14 E.A.D. ___, PSD Appeal No. 08-02, Slip Op. at 50-51, 54-55 (EAB Feb 18, 2009). EPA guidance related to the new 1-hour NAAQS again confirms this requirement and specifically directs permitting authorities implementing the federal program to establish limits over a 1-hour period:

Because compliance with the new SO₂ NAAQS must be demonstrated on the basis of a 1-hour averaging period, the reviewing authority should ensure that the source’s PSD permit defines a maximum allowable hourly emission limitation for SO₂... Hourly limits are important because they are the foundation of the air quality based emissions demonstration relative to the 1-hour SO₂ NAAQS.

1-Hour SO₂ Guidance (Exhibit 5) at p. 7 (emphasis added).

Here, IEPA’s permit decision did not follow these directives. The applicant clearly based its ambient air quality analysis for the 1-hour NO_x and SO₂ NAAQS on *assumed* maximum emission rates entered into the AERMOD model. In fact, the concentrations were 4.06 grams *per second*, Exhibit 6 at 000020 Table 3-1, Exhibit 7 at 000012, which were used to produce hourly concentration outputs. Exhibit 6 at 000017; Exhibit 7 at 000009. Yet, the permit does not establish limits based on these assumed maximum emission rates over a period of a second or an hour and, therefore, the limits do not protect the 1-hour.

Instead, the permit establishes limits based on a 3-hour average that does not ensure that the maximum grams-per-second or even pounds-per-hour emission rates used to predict the NAAQS

concentration estimates were used. It is especially concerning that IEPA admits that the kilns' emissions will fluctuate, which reaffirms the need for limits averaged over no longer than an hour to ensure that spikes in emissions do not threaten the 1-hour NAAQS. In fact, several statements by IEPA in the record further highlight the need for limits averaged over an hour or less. First, IEPA argues that kiln NO_x emissions can vary by as much as 20%. Response to Comments (Exhibit 3) at 22 (arguing that a 20% compliance margin is appropriate because of "normal variation in the effectiveness of control measures"). If kiln emissions do, in fact, fluctuate by 20%, the emission rate during any one hour could be significantly higher than the rate when averaged over three hours. Second, IEPA acknowledges that during "breakdown and idling events," where hourly emissions of SO₂ and NO_x can reach 245 and 175 pound per hour, respectively, and still not violate the permit limits because the limits are based on a 3-hour averaging time, the NAAQS is violated where the background concentration is greater than 97 ug/m³. *Id.* at 33. Since the background concentration in a full air quality impact analysis can never be lower than the design value⁷, which IEPA states is 117 ug/m³ for NO_x and 174 ug/m³ for SO₂, Project Summary (Exhibit 4) at 12, the analysis referenced by IEPA actually demonstrates that the 3-hour averaging period does not protect the NAAQS.

Remand is appropriate with instruction that IEPA set a maximum hourly emission rate consistent with the modeling inputs used to assess compliance with 1-hour SO₂ and NO_x NAAQS.

⁷ EPA guidance actually suggests using the maximum monitored hourly concentration, which is higher than the design value. The guidance notes that because the 1-hour SO₂ standard is expressed at the 99th percentile, combining the design value, 99th percentile, monitored background with the 99th percentile modeled concentration can *understate* the 99th percentile cumulative impact. Exhibit 5 at 000017. Therefore, the guidance recommends a "first tier" analysis that uses the highest monitoring one-hour background concentration instead of the 99th percentile design value. *Id.* Contrary to IEPA's assumption that the expression of the 1-hour standards require "ameliorating" the results of a cumulative impact analysis that combines the 98th or 99th percentile monitored background with the 98 or 99th percentile modeled concentration, Exhibit 3 at 33, that practice actually *understates* the maximum potential impacts.

III. THE BACT LIMITS ESTABLISHED FOR THE KILNS ARE NOT SUPPORTED BY SUFFICIENT EVIDENCE IN THE RECORD OR BY SUFFICIENT EXPLANATION BY IEPA.

A. Background on Establishing BACT Limits.

The Clean Air Act and U.S. EPA's implementing regulations require BACT emission limits for all new and modified pollution sources. 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(j)(2). BACT is defined as:

an emissions limitation based on the maximum degree of reduction of each pollutant subject to regulation under [the Act] emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

42 U.S.C. § 7479(3); *see also* 40 C.F.R. § 52.21(b)(12) (providing similar regulatory definition of BACT). This definition requires limits to be set based on the maximum achievable emission reduction with the best pollution control option and "tailor-made" for that facility and that pollutant. *In re CertainTeed Corp.*, 1 E.A.D. 743, 747 (Adm'r 1982); *NSR Manual* at B.2 ("The reviewing authority then specifies an emissions limitation for the source that reflects the maximum degree of reduction achievable for each pollutant regulated under the Act."). The plain meaning of "maximum" is "the greatest quantity, number, or degree possible or permissible; the highest degree or point (of a varying quantity...) reached or recorded; upper limit of variation." WEBSTERS NEW WORLD COLLEGE DICTIONARY 837 (3rd Ed. 1997). Courts have instructed that the words "maximum" and "achievable" constrain IEPA's discretion in setting limits. *See Alaska Dept. of Env'tl. Conservation v. EPA*, 540 U.S. 461, 485-89 (2004).

B. BACT for Startup and Shutdown Periods.

As noted above, BACT is a limit based on the maximum degree of reduction achievable through, among other options, clean fuels. 42 U.S.C. §§ 7475(a)(4), 7479(3); *accord* 40 C.F.R. § 52.21(b)(12) (similar regulatory definition of BACT). Clean fuels are central to this definition.

In its brief list of BACT production processes, methods, systems, and techniques, Congress sounds one prominent note: fuels. CAA § 169(3), 42 U.S.C. § 7479(3). In addition to “fuel cleaning” and “treatment or innovative fuel combustion techniques,” the remaining listed control is “clean fuels.” *Id.* Congressional direction to permitting applicants and public officials is emphatic. In making [BACT] determinations, they are to give prominent consideration to fuels.

Northern Michigan, Slip. Op. at 17-18. Therefore, BACT limits should be based on clean fuels that are available and cost effective, except in unusual cases where doing so would require a different “basic purpose” or “basic design” (but only to the extent those are “objectively discernable”), or would “fundamentally change” or “call into question [the facility’s] existence.”⁸ *In re Prairie State Generating Co.*, 13 E.A.D. 1, 22-24 (EAB August 24, 2006); *In re Hibbing Taconite Co.*, 2 E.A.D. 833, 843 (Adm’r 1989); *see also Northern Michigan*, Slip Op. at 26-27. For example, where natural gas can be used as a fuel in a boiler, its use must be considered in a BACT analysis.

Northern Michigan, Slip Op. at 20 n.17; *see also In re Cash Creek Generation, LLC*, Petitions IV-2008-1 and IV-2008-2, Order at 7-10 (EPA Adm’r, Dec. 15, 2009) (same for combustion turbine)⁹.

Here, IEPA considered both fuel oil and natural gas as fuels for the startup and shutdown of the lime kilns by setting BACT based on the use of either fuel. Exhibit 1 § 2.1.3-2(c)(ii) and (iii).

⁸ A choice of fuels for mere cost savings is not a “basic design” or “basic purpose.” *Prairie State*, Slip Op. at 30 n.23.

⁹ Available at http://www.epa.gov/region7/air/title5/petitiondb/petitions/cashcreek_response2008.pdf

IEPA does not assert, however, that either fuel would have the same emissions. *See* Project Summary (Exhibit 4) at 8 (describing natural gas as “essentially sulfur-free clean fuel for SO₂ emissions”). Instead, IEPA purports to reject BACT based on natural gas during startup and shutdown periods because of cost. Response to Comments (Exhibit 3) at 25. Specifically, IEPA asserts that natural gas is not the basis for BACT because “the cost of constructing a pipeline to serve the plants, estimated at \$1.75 million cannot be considered cost-effective as secondary fuels...” *Id.* This is not an appropriate cost-effectiveness analysis. In step 4 of the top-down BACT process, the IEPA should have considered the relative cost effectiveness of the alternative control technologies-- here: natural gas and diesel fuel. *See Russell City*, Slip. Op. at 22 (citing *NSR Manual* at B.41-.46).

Cost considerations in determining BACT are expressed in one of two ways: average cost effectiveness or incremental cost effectiveness. *NSR Manual* at B.36; *see also Inter-Power*, 5 E.A.D. at 136. Either one involves a calculation of the cost-per-ton of emission reduction, which can be compared to the cost-per-ton of the alternatives. *In re Steel Dynamics*, 9 E.A.D. 165, 202 and n.43 (EAB 1999); *In re Masonite Corp.*, 5 E.A.D. 551, 564 (EAB 1994); *NSR Manual* at B.36-.41. In this case, IEPA never calculated the cost-per-ton of using natural gas instead of oil for startup. Instead, it apparently relied only on the total gross cost to install a natural gas line. Not only was this an inappropriate cost consideration for purposes of BACT, but it also gave no credit to the natural gas option due to the lower fuel cost of burning natural gas instead of oil¹⁰.

IEPA’s erroneous cost consideration in the BACT analysis for startup emissions is clear error and an abuse of discretion. Remand is appropriate.

¹⁰ As IEPA notes, the cost of oil is “more than five times more than that of natural gas.” Project Summary (Exhibit 4) at 8 n.10. This fuel cost savings will off-set some or all of the capital cost to install a gas pipeline over time, but IEPA’s incomplete cost-effectiveness analysis did not allow for this consideration.

C. IEPA's BACT Analysis For The Lime Kilns Insufficiently Considered Demonstrated Emissions Achieved In Practice At Other Rotary Lime Kilns.

Sierra Club's comments noted that similar lime kilns to the proposed MLC kilns have demonstrated lower emissions than the limits set as BACT in the permit. Specifically, Sierra Club demonstrated that U.S. EPA Region 5 comments on a 1996 permit for a kiln in Green Bay, Wisconsin, and subsequent testing in 2002 and 2006, showed that SO₂ emissions much lower than those established as BACT in the MLC permit were achievable. Sierra Club Comments (Exhibit 2) at 8. Additionally, Sierra Club demonstrated that IEPA's own internal analysis for an earlier lime kiln permit identified emission rates that had been used by U.S. EPA in establishing emission factors and that many of those were significantly lower than the limits in the MLC permit. *Id.* at 9. IEPA acknowledged these lower demonstrated emission rates, but dismissed them because "emission data, by itself [sic], is of minimal value for determining BACT" because additional data was allegedly missing, including "quality of limestone being produced, kiln type, capacity and size... operating rate during testing, fuel consumption and sulfur content." Response to Comments (Exhibit 3) at 17. Since these data would also be needed to know whether the demonstrated emission rates were representative of the MLC kilns, IEPA asserts, they cannot be considered. *Id.*

IEPA concluded that BACT should be 0.645 lbs SO₂/ton lime, based on 97.7 percent reduction of the maximum fuel sulfur content. *Id.* at 18; Project Summary (Exhibit 4) at 8 n.8. IEPA provides no evidence in support for its 97.7% of fuel sulfur content presumption, however. Nor did IEPA apparently bother to look at the evidence provided by Sierra Club as attachments to Sierra Club's comments, which provide much if not all of the information IEPA claims was missing. For example, Sierra Club attached the stack test analysis from the Wisconsin Department of Natural Resources, which identified the kiln (Western Lime Kiln #2), the lime quality (high

calcium for paper mills, water treatment, plants and scrubbing sulfur dioxide gas streams), the size of the kiln (450 tons/day), the production rate (30.9 tons per hour and 33.31 tons per hour), and the test results. *See* Correspondence/Memorandum, Re: Review of stack test results for Western Lime Co., West Bend (May 31, 2002), attached as **Exhibit 8**; Correspondence/Memorandum, Preliminary Stack Test Review (March 21, 2006), attached as **Exhibit 9**.

Sierra Club also commented that the NO_x emission limits established as BACT in the permit are higher than rates demonstrated in practice at a rotary lime kiln in Wisconsin. Sierra Club Comments (Exhibit 2) at 10. Similarly, Sierra Club noted lower BACT limits required in a prior permit, and that another rotary lime kiln demonstrated much lower particulate emissions to be achievable than those established in the permit as BACT. *Id.* at 11.

IEPA responded to these comments by relying on a “margin of safety” above demonstrated emission rates. Response to Comments (Exhibit 3) at 22 (asserting that the difference between the demonstrated 2.94 lbs/ton NO_x rate and the permit’s 3.5 lbs/ton rate represents the necessary “margin of safety”), 24 (stating that the difference between the demonstrated 0.10 lb/ton rate and the permit’s 0.18 and 0.14 lb/ton limits was needed for a “margin of safety”). IEPA points to no evidence in support of the need for a “margin of safety,” nor in support of the specific “margin of safety” selected. Rather than conducting an analysis, and providing evidence in the record to support IEPA’s BACT limits in light of proof of lower achievable emission rates at similar kilns, IEPA reflexively references a “margin of safety” to justify the draft permit’s limits. In fact, it appears that rather than exercising considered judgment, IEPA intended to simply attribute whatever difference might exist between the draft permit’s limits and demonstrated lower emission rates as the necessary “margin of safety.” Presumably, if Sierra Club had identified emission rates

half as much as those identified in its comments, IEPA would have still attributed the even greater difference between those and the permit limits as the correct “margin of safety.”

To the extent that the Clean Air Act’s plain language does not preclude an agency from establishing limits higher than the lowest emission rates achievable with the best control technology, the Board’s prior decisions hold that any operating margin above that demonstrated maximum emission reduction (lowest emission rate) must be based on specific findings in the record, supported by evidence in the record. In *Newmont Nev. Energy Inv., LLC*, the Board accepted a limit that was higher than the lowest pollution rate potentially achievable through the best pollution controls because there was no evidence in the record that such limit was, in fact, achievable. 12 E.A.D. 429, 440 (EAB 2005). Under those circumstances, where *no* data existed, the Board nevertheless instructed the permitting agency that it must “adequately explain its rationale for selecting a less stringent emissions limit, and that rationale must be appropriate in light of all evidence in the record.” *Id.*

Similarly, in *In re Russell City Energy Center*, 15 E.A.D. ___, PSD Appeal Nos. PSD 10-01; PSD 10-02; PSD 10-03; PSD 10-04; PSD 10-05; PSD 10-12; PSD 10-13 (EAB Nov. 18, 2010), the Board summarized the requirement that the permitting authority document its basis for not establishing BACT at lower limits that have been demonstrated in practice, holding “that the permit issuer is obliged to adequately explain its rationale for selecting a less stringent emissions limit, and that rationale must be appropriate in light of all evidence in the record.” *Id.* at 79. Specifically, where the petitioners in that case raised emissions performance test results at similar facilities, the Board held that the permitting agency was “obligated to adequately explain its rationale for selecting a less stringent emission limit, and that rationale must be appropriate in light of all

evidence in the record.” *Id.* at 80. Such a demonstration is “inherently fact-specific and unique to the particular circumstances...” *Prairie State*, 13 E.A.D. at 55.

In this case, IEPA categorically rejected lower demonstrated emission rates at other rotary lime kilns. There is no analysis and nothing in the record to support IEPA’s speculation that there might be differences between the tested kilns and the proposed MLC kilns, nor that any differences that might exist would result in different emission rates. To the extent that IEPA attempts to justify the permit’s higher BACT limits, compared to demonstrated emission rates, on a “safety factor,” IEPA provides no evidence in the record to support the need for a safety factor or the amount of safety factor chosen, nor any analysis connecting evidence to the limits IEPA established.

This case stands in sharp contrast to *Russell City*, where the permitting agency used permit limits from recently permitted sources, plus emission performance data from other sources, and analyzed those data to determine the range of emission rates for similar sources. Slip. Op. at 80-81. In response to comments, the permitting agency in *Russell City* gathered and analyzed additional data. *Id.* at 82. It then provided an explanation in the record for the specific “compliance margin” included in the BACT limits in that case. *Id.* The Board was then able to review both the evidence relied upon by the permitting authority and the agency’s analysis, to conclude that both were reasonable. *Id.* at 84. Here, however, IEPA offers only its conclusory assertions that the limits in the permit represent BACT and its response to comments that the difference between demonstrated emissions elsewhere and the permit limits are appropriate compliance margins. The public and the Board can only guess what basis, if any, IEPA has for the specific limits and specific compliance margins it chose.

More is required of IEPA in this case. The use of a safety factor, and the establishment of a BACT limit, “is not an opportunity for the permittee to argue for, and the permit issuer to set, a

safety factor that is not fully supported by the record, or that does not reflect the exercise of the permit issuer's considered judgment..." *Russell City*, Slip. Op. at 86. At a minimum, IEPA must identify the data in the record of the range of emissions from similar lime kilns and an explanation for how those data support the specific emission limits established in the permit. Remand is appropriate.

D. IEPA Erred By Establishing BACT Based On A Dirtier Fuel Than Planned For The Kilns.

Sierra Club commented that the draft permit assumed a sulfur content of fuel coal of 3.5% sulfur, but that coal sulfur content exists over a larger range and lower sulfur coals are available. Exhibit 2 ant 5. As Sierra Club noted, "[t]here is no apparent consideration of lower sulfur coals (in combination with "natural" scrubbing from the limestone and post-combustion controls)." *Id.* Further, Sierra Club noted that the SO₂ BACT limit based on each coal type considered was not supported in the record. *Id.*

In IEPA's Response to Comments, IEPA copies verbatim an analysis the applicant created after the comment period:

As correctly observed in this comment, this analysis did not correctly portray the cost-effectiveness of the use of a lower sulfur coal, for the reason identified in the comment.³³ Accordingly, a corrected analysis has been obtained from Mississippi Lime, as provided below. It addressed two alternative coals, coal from a local reserve of low sulfur coal whose continuing availability is uncertain and Powder Reserve basin coal. Both coals are considerably more expensive than "ordinary" local Illinois coal, which is available from several mines and does not pose concerns for continuing availability. The cost-effectiveness of use of other alternative coal is excessive considering total cost-effectiveness for control of SO₂ emissions.

Cost-Effectiveness Analysis for Alternative Low-Sulfur Solid Fuel

Total Annual Fuel Usage: 3,854,400 mmBtu

		Illinois High Sulfur Coal (baseline)	Illinois Low Sulfur Coal	Western Coal (Powder River Basin)
Coal Composition	% Sulfur	3.2	1.4	0.6
	mmBtu/ton	21.9	23	16.4
Cost per ton		\$40	\$72	\$105
Annual Fuel Cost		\$7,040,000	\$11,859,692	\$24,677,561
Potential SO ₂ Emissions (tons)		282	115	71
Incremental Cost		-	\$4,819,692	\$12,817,869
Incremental Tons Removed			169	45
Average Cost-Effectiveness (\$/ton removed)		-	\$28,982	\$83,554
Incremental Cost-Effectiveness (\$/ton removed)		-	\$28,554	\$286,144

This new analysis confirms Sierra Club's comment that there was no basis for the 3.5% sulfur coal underlying the BACT limit. In the Project Summary, IEPA stated that the coal intended for the kilns would be 3.5 % sulfur and that the kilns would remove 97.7% of that sulfur, resulting in a BACT emission rate for SO₂ of 0.645 lbs SO₂ per ton of lime produced. Project Summary (Exhibit 4) at 8 and n.8. However, as the table above from the Response to Comments indicates, the intended coal actually has a sulfur content of 3.2% sulfur. If that coal sulfur content is used to establish BACT, instead of the apparently erroneous 3.5% initially assumed by IEPA, the fuel

would introduce only 1280 pounds of sulfur dioxide into the kiln per hour¹¹, and at 97.7% control assumed by IEPA, the resulting BACT limit should be 0.589 lbs SO₂/ton lime¹² produced, instead of 0.645 lbs/ton. IEPA never addressed the lack of basis for its assumed 3.5% sulfur coal, nor did it apparently recognize that its Response to Comments undermined that assumption. Review and remand is appropriate to revise the SO₂ BACT limit in light of the new information that the design fuel is 3.2% sulfur, and not 3.5% sulfur as initially represented.

IV. UPON REMAND, IEPA SHOULD BE DIRECTED TO COMPLY WITH ALL REQUIREMENTS EFFECTIVE AT THE TIME OF REISSUANCE.

If the Board remands the MLC permit, it should also direct IEPA to ensure compliance with all requirements in effect at the time of permit issuance after remand. *In re Shell Gulf of Mexico Inc. and Shell Offshore Inc.*, 15 E.A.D. ___, Case Nos. OCS 10-01, 10-02, 10-03, 10-04, Slip. Op. at 9, 82 (EAB Dec. 30, 2010). For example, it will require BACT limits for greenhouse gases. *See* 75 Fed. Reg. at 17,021 (stating that no grandfathering is allowed and that permits that are not final prior to January 2, 2011 will need a BACT limit for GHGs); *see also* 40 C.F.R. §§ 124.15(b) (a final decision becomes effective after review under § 124.19, if such review is requested), 124.19(f)(1) (final agency actions occurs when the PSD permit is issued after completion of review and remand, if any); *Ziffrin v. United States*, 318 U.S. 73, 78 (1943) (“*A fortiori*, a change of law pending an administrative hearing must be followed in relation to permits for future acts.”); *cf. In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 614-15 (EAB 2006) (distinguishing applicability of rules that are expressly prospective to new *applications* and not pending permits, as in that case, from rules that do not contain such express limitation). In addition, to the extent that

¹¹ From Project Summary (Exhibit 4) at n.8 3.5% sulfur coal introduces 1400 lbs SO₂/hour, (3.5/1400 = 3.2/1280).

¹² 1280 lbs SO₂/hour * (1-0.977) * 50 lbs lime/hour = 0.5888 lbs SO₂/ton lime.

additional or revised NAAQS are issued, or increments become effective, IEPA must ensure compliance with those standards as well.

CONCLUSION

For these reasons we respectfully urge the Board to review and remand the Mississippi Lime Company PSD permit.

Respectfully submitted, this 26th day of January, 2011.

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