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

IN THE MATTER OF:	)	
	)	
MISSISSIPPI LIME COMPANY	)	PSD APPEAL NO. 11-01
	)	
PERMIT NO. 157863AAC	)	

RESPONSE TO PETITION FOR REVIEW

The State Of Illinois ("Illinois"), by and through Illinois Attorney General Lisa Madigan, hereby files this Response ("Response") to the Sierra Club's ("Petitioner") Petition for Review ("Petition") of the above-referenced Clean Air Act permit issued to Mississippi Lime Company ("MLC") by the Illinois Environmental Protection Agency ("Illinois EPA"). Illinois respectfully requests that the Environmental Appeals Board ("Board") deny the Petition for Review for the reasons set forth within this Response.

I. INTRODUCTION

The Petition challenges the Construction Permit/Prevention of Significant Deterioration ("PSD") Approval issued on December 30, 2010, to MLC pursuant to § 165 of the Clean Air Act (42 U.S.C. §7475).

A. Relevant Case History

On October 27, 2008, MLC submitted an application to the Illinois EPA seeking a permit for the construction of a lime manufacturing plant, including two rotary lime kilns with pre-heaters; limestone crushing; storage and handling; fuel storage and handling; lime hydration; lime storage, handling and loadout; and other related operations, located in Prairie du Rocher, in Randolph County, Illinois. The proposed project is designed to manufacture lime by high temperature roasting or "calcinations" of limestone in kilns.

After preliminary review of MLC's application, Illinois EPA made a determination that the application met applicable requirements and prepared a draft permit for public notice and comment. (*See Petitioner's Exhibit 4, pg.* 1). Public notice was placed in the St. Louis Post Dispatch on October 4, 2010 and the Red Bud North County News on October 7, 2010, with subsequent notices published in the Red Bud North County News on October 14 and 21, 2010. A public hearing was held at the Prairie du Rocher Elementary School, Illinois on the evening of November 18, 2010 to receive comments and address questions from the public on the permit application and draft permit. *(See Generally, State's Exhibit 1, Transcript of the Public Hearing).* Written comments were accepted until December 2010.

Illinois EPA issued a state Construction Permit and PSD Approval (hereinafter "PSD Approval"), Permit No. 157863AAC to MLC on December 30, 2010. (*See Generally Petitioner's Exhibit 1*). The permit authorizes MLC to construct a lime manufacturing planting, including two rotary kilns and associated equipment. (*See Generally Petitioner's Exhibit 1*).

Petitioner filed a Petition for Review with the Board on or about January 26, 2011. The Petitioner challenges the Illinois EPA's permitting determination on grounds relating to the PSD approval.

B. Statutory Background

The federal PSD program under the Clean Air Act ("CAA") principally regulates proposed new major sources and major modifications to existing sources in areas of the Nation that are deemed attainment or unclassifiable with respect to the National Ambient Air Quality Standards ("NAAQS"). *See,* 42 U.S.C. §7470 *et seq*. Among other things, the PSD regulations require a pre-construction review of such proposed projects to ensure that resulting emissions are not responsible for a violation of the NAAQS or applicable PSD ambient air quality increments, 40 C.F.R. §52.21(k), and a demonstration that subject sources will employ the Best Available

Control Technology ("BACT") to minimize emissions for all PSD pollutants emitted in major or significant amounts. *See,* 40 C.F.R. §52.21(j).

Illinois EPA administers the PSD program for the State of Illinois, pursuant to a delegation agreement with the USEPA/Region V. *See,* 46 Fed. Reg. 9,580 (January 29, 1981). For purposes related to this petition, Illinois EPA is a delegated state permitting authority that "stands in the shoes" of the Administrator of the USEPA when implementing the federal PSD program. *See,* 46 Fed. Reg. 9,580 (January 29, 1981); *In re Zion Energy, LLC*, 9 E.A.D. 701, 701-702, fn.1 (EAB, 2001). A PSD permit issued by the Illinois EPA is subject to review by the EAB in accordance with 40 C.F.R. §124.19. *Id.*

In taking action on the PSD Approval, Illinois EPA determined that Power Holding's proposed plant is a major source for sulfur dioxide ("SO_2"), nitrous oxides ("NO_x"), particular matter ("PM"), and carbon monoxide ("CO"), as potential emissions for each pollutant from the proposed facility exceed the significance threshold for that pollutant. (*See Petitioner's Exhibit 4, pg. 4*).

II. STANDARD OF REVIEW

The Board's review of final PSD permit decisions is governed by the procedural requirements of 40 C.F.R. Part 124. Review is warranted where the permit decision involves a "finding of fact or conclusion of law which is clearly erroneous" or where it involves "an exercise of discretion or an important policy considerations." 40 C.F.R. §124.19(a)(1) and (2). In construing these requirements, the Board has consistently recognized that its review authority is exercised "sparingly" and that the scope of such review is carefully circumscribed. See, 45 Fed. Reg. 33,290, 33,412 (May 19,1980); *accord, In re Knauf Fiber Glass,* 8 E.A.D. 121,

127,(EAB, February 4, 1999); *n re Zion Energy, LLC*, 9 E.A.D. 701 (EAB, March 27, 2001 (EAB, March 27, 2001).

It is a long-standing Board policy to favor final adjudication of most permitting decisions at the Regional or appropriate state level. *See, In re MCN Oil & Gas Company,* UIC Appeal No 02-03, slip op. at 6 (EAB, September. 4, 2002) 2002 WL 31030985. In the absence of clear error or other compelling reason warranting review, the Board defers to the Regional or delegated state permitting authorities. *In re Metcalf Energy Center,* PSD Appeals Nos. 01-07 and 01-08, slip op. at 12 (EAB, August 10, 2001). Nowhere is the Board's deference more evident than in matters that are "quintessentially technical" in nature. *Id.; In re Three Mountain Power, LLC,* 10 E.A.D. 39 (EAB, May 30, 2001).

A petitioner is obligated to "explain why the permitting authority's response to those objections is clearly erroneous or otherwise merits review." *In re Zion Energy, LLC*, 9 E.A.D. 701 (EAB, March 27, 2001), citing *In re Knauf Fiber Glass, GmbH, supra.* A petitioner cannot simply repeat or restate the arguments presented during the public notice period but must, instead, supply information or technical grounds in its petition that demonstrate the merits of administrative review. *See, In re Steel Dynamics, Inc.*, 9 E.A.D. 165 (EAB June 22, 2000), *citing In re Maui Electric Company,* 8 E.A.D. 1 (EAB, September 10, 1998).

The Board also requires that a petitioner, in identifying its objections to a permit, make its allegations both "specific and substantiated," especially where the objection involves the "technical judgments" of the permit authority. *See, In re Avon Custom Mixing Services, Inc.*, 10 E.A.D. 700 (EAB, August 27, 2002). This burden ensures that the issues and/or arguments on appeal are well defined and actually represent a "bona fide" disagreement between the petitioner and the permit authority. If expert opinions or data are in conflict, the Board examines the

record of the proceeding to determine whether the permit authority has adequately considered the issue and whether its decision is "rational in light of all the information in the record, including the conflicting opinions and data." *In re Three Mountain Power, LLC,* PSD Appeal No. 01-05, slip. op. at 17 (EAB, May 30, 2001), *citing*, *In re Steel Dynamics, Inc.*, 9 E.A.D. 165 (EAB June 22, 2000)

III. ARGUMENT

A. Illinois EPA's Used an Appropriate SIL for the One Hour SO_2 NAAQS

1. Background on the Use of SILs in Culpability Analysis

Petitioner argues that the Illinois EPA used an unlawful Significant Impact Level ("SIL") in excusing modeled violations of the 1-hour SO_2 NAAQS by MLC. *(Petitioner's Petition, pg.9).* "Under the PSD program, a proposed new major stationary source or major modification must . . . complete an air quality impact analysis . . . to demonstrate compliance with applicable NAAQS." *(See Petitioner's Exhibit 5, pg. 6, EPA August 23, 2010 Guidance Memo).* Where modeling predicts that a new source's ambient air quality impacts will be greater than the NAAQS, PSD permit applicants can apply a "culpability analysis" to determine whether the facility's contribution to modeled NAAQS violations are above the SIL at the specific location and time of a modeled violation. *See In re Prairie State Generating Company*, 13 E.A.D. 1, 103 (EAB 2006); *NSR Manual* at C.52. If an applicant can demonstrate that after removing from consideration instances where the source is predicted to contribute less than the SIL, its total emissions will be less than the NAAQS, the agency may, upon verification, approve the permit. *See NSR Manual* at C.52.

Although Petitioner questions the legal basis for applying "culpability analysis," the Board and courts have long accepted the practice as an exercise of the agency's power to create unwritten exceptions to a statute for "*de minimis*" matters. *See Prairie State*, 13 E.A.D. at 103-09; *See also Alabama Power Co. v. Costle*, 636 F.2d 323, 400 (D.C. Cir. 1979). In *Prairie State*, the Board explained,

> Read in context, the requirement of an owner or operator to demonstrate that emissions from a proposed facility will not "cause, or contribute to" air pollution in excess of a NAAQS standard must mean that some non-zero emission of a NAAQS parameter is permissible, otherwise such a demonstration could not be made. Courts have long recognized that EPA has discretion under the Clean Air Act to exempt from review "some emission increases on grounds of de minimis or administrative necessity." [quoting *Alabama Power* at 400] Moreover, EPA has long interpreted the phrase "cause, or contribute to" to refer to significant, or non-de minimis, emission contributions. This interpretation is reflected in both applicable EPA regulations and in long-standing EPA guidance.

13 E.A.D. at 104-05.

Illinois EPA was not required to reflexively apply the SIL recommended in the EPA Guidance Memo. First, the EPA Guidance Memo does not carry the force of law. The Guidance Memo states, "This guidance does not bind state and local governments and permit applicants as a matter of law." *(See Petitioner's Exhibit 5, pg. 2)* Because this document is not binding, it does not require an automatic application of its terms. Guidance is just that, guidance; it does not have the force of law. *(See Generally, Appalachian Power v. EPA, 208 F.3d. 1015, D.C. Cir. 2000).* Second, the EPA Guidance Memo was issued after MLC conducted the culpability analysis as part of MLC's permitting process. MLC had spent considerable time and effort in developing the models and submitting them to the Agency, this all took place prior to the issuance of the guidance.

When the 1-hour NAAQS for SO_2 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 (*New Source Review Workshop Manual – Prevention of Significant Deterioration and Non- Attainment Area Permitting,* Draft, October 1990. USEPA. page C.52). First, the impact from the proposed source is assessed. Then, the model is run also including sources (These sources are those that meet certain guidelines defined by Illinois EPA and include those sources that are very close to the proposed source as well as those that meet a particular emission level) 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 (This process is referred to as the culpability analysis), then the application may proceed.

The initial 1-hour SO_2 model predicted a value of 2757.4 ug/m3. At the time that MLC proposed the modeling protocol, no SIL existed. However a SIL was needed for two reasons, one as a screen tool and second to conduct the culpability analysis if warranted. The Illinois EPA and USEPA Region V recommended to the applicant that the modeling methodology provided by USEPA for the new 1-hour NO_2 standard Since no guidance for the SO_2 standard was available at the time of the modeling, the NO_2 guidance was adapted for use with 1-hour SO_2 taking into account the differences in form between NO_2 and SO_2. Therefore, the applicant used a screening level of 10 μg/m3 (which corresponds to 4 ppb). The predicted high concentration after this "culpability analysis" was only 11.4 μg/m3 which, when combined with the background concentration, is below the NAAQS. *(See petitioner's Exhibit 3, pg. 30).* Every effort was made to come up with a number that would operate as a SIL. The Agency accepted

MLC's use of 10 μg/m3 and based on its Response to comment The Agency certainly considered this number *de minimis. (See Petitioner's Exhibit 3, pg. 30).*

The application included dispersion modeling to address these new NAAQS standards. The modeling for the plant was fully audited by Illinois EPA to confirm proper procedures and compliance with USEPA Guidance. Model inputs such as emissions, stack parameters and building locations, were verified for consistency with the other technical information in the application. Modeling options and procedures were reviewed for assurance that these methodologies were in accordance with federal and state guidelines. Processed meteorological data, building downwash, and receptor heights were recreated and incorporated into the audit modeling runs performed by the Illinois EPA and the results were reviewed to verify that the conclusions of the submitted air quality analysis concurred with the results of the audit modeling. In fact audit runs for the culpability analysis for NO_2 indicate that exceedances of the one hour NAAQS for NO_2, do not occur where contributions of NO_2 from MLC's kilns made a significant impact under the new NO_2 SIL of 7.52 ug/m^3. Similarly audit runs for the culpability analysis for SO_2 indicate that exceedances of the one hour NAAQS for SO_2, do not occur where contributions of SO_2 from MLC's kilns made a significant impact under the new SO_2 SIL of 7.85 ug/m^3. *(See State's Exhibit 2, December 29, 2010 E-Mail).* In fact all of MLC's modeling was fully audited. This would include inputs for emissions, stack parameters, building locations. The Agency would also look at modeling options and procedures to insure the methodologies were in compliance with requirements. After that the Agency performs audit runs for all pollutants, all averaging times and scenarios including start-up and malfunction. *(See State's Exhibit 3, December 29, 2010 Email).* Petitioner's Petition for Review has failed to meet the standard of review set out above. Petitioner has not supplied the information or technical

grounds necessary to demonstrate that review is warranted on this issue. Illinois EPA conducted the appropriate analysis on this issue.

2. Illinois EPA's Use of 3-Hour Averages Was Appropriate

Petitioner argues that, Conditions 2.1.3-2(b) and 2.1.6 in the permit would set limits for NOx and SO_2 emissions that apply as a 3-hour averages. However, USEPA has adopted NAAQS for these pollutants that apply on a 1-hour period. A 3-hour average does not ensure compliance with a 1-hour standard.

The BACT emission limits for the kilns in Condition 2.1.3-2(b) for SO_2 and NOx emissions have an appropriate averaging time or compliance period. These limits address the performance of the control measures for these pollutants and the limits are set on an appropriate averaging time for this purpose. They are also consistent with the averaging times of other BACT determinations set for these pollutants. If these BACT limits were to be set on a shorter time period, the limits would have to higher to account for the normal variation in performance of control measures when considered over a shorter period of time. Rather than set such higher BACT limits, that would understate the typical performance of control measures, it is appropriate to maintain BACT limits that more closely address the typical performance of control measures and are consistent with historic practice. The short-term emission limits for the kilns in Condition 2.1.6(a) for SO2 and NOx also have an appropriate averaging time. As argued the one-hour NAAQS for SO_2 and NOx 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 SO_2 and NOx on a three hour averaging time to ameliorate for the unrealistic nature of the modeling process as it acts to overstate impacts. In addition, the specific circumstances that this comment speculates upon, i.e., with "triple emissions" occurring in a single hour, are not possible for the proposed kilns. The SO_2 and NOx emissions 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.

With the implementation of the new 1-hour standard and the application still evolving, The Agency in its technical judgment explained in the Responsive Summary its rationale for setting the emission limits for SO_2 and NO_x with 3-hour averages. *(See Petitioner's Exhibit 3, pgs. 32-33).* As mentioned above, review of the conditions of a PSD permit should be sparingly granted, and most permit conditions should be finally determined at the permit issuer level. *See, e.g., In re Kawaihae Cogeneration Project*, 7 E.A.D. 107, 114 (EAB 1997); 45 Fed. Reg. 33,290, 33,412 (May 19, 1980). The Board generally defers to the permit issuer's judgment absent evidence of clear error of fact or law, or some other compelling reason warranting review. *In re Inter-Power of N.Y., Inc.*, 5 E.A.D. 130, 144 (EAB 1994). This is particularly true in cases where highly technical issues are in dispute. *In re Steel Dynamics, Inc.*, PSD Appeal Nos. 99-4 & 99-5, slip op. at 53 (EAB June 22, 2000), 9 E.A.D. ___; *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 403 (EAB 1997). The application of a recently adopted emission limitation with very little

practical experience of its application is clearly fights within the definition of a highly technical matter.

Again, Petitioner has failed to show that Illinois EPA's actions on this point were clearly erroneous. Review must be denied and Illinois EPA's permit upheld.

B. Illinois EPA Made Appropriate BACT Determinations

As set forth above, the CAA and the PSD regulations require, among other things, that new major stationary sources and major modifications of such sources employ BACT to minimize emissions of regulated pollutants. CAA §165 (a)(4), 42 U.S.C. §7475(a)(4); 40 C.F.R. §52.21(j)(2). The PSD regulations define BACT in part as follows:

> "Best Available Control Technology" means an emissions limitation...based on the maximum degree of reduction for each pollutant subject to regulation under the CAA which would be emitted from any proposed major stationary source... which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for the source...

40 C.F.R. §52.21(b)(12). Under the rules governing the PSD permitting process, the permit applicant is responsible for proposing emission limitations that constitute BACT for each regulated pollutant and for providing information on the control alternatives that can be used to achieve it. 40 C.F.R. §52.21(n)(1)(iii). The ultimate BACT decision is made by the permit-issuing authority. *In Re RockGen Energy Center* 8 E.A.D. 536, 541 (EAB 1999).

As set out by the Board in *In Re Desert Rock Energy Co.*, PSD Appeals Nos. 08-03, 08-04, 08-05 & 08-06, slip op. at pg. 50 (Sept. 29, 2009) (14 E.A.D. ____), a petitioner challenging an issue that is fundamentally technical in nature bears a particularly heavy burden because the

Board generally defers to the permit issuer on questions of technical judgment. *E.g., Dominion*, 12 E.A.D. at 510; *Peabody*, 12 E.A.D. at 33. Nevertheless, the Board has stated that BACT determinations, which are generally technical in nature, are one of the most critical elements in the PSD permitting process and thus "should be well documented in the record, and any decision to eliminate a control option should be adequately explained and justified." *Indeck*, slip op. at 11, 13 E.A.D. at __ (citing *In re Knauf Fiber Glass GmbH*, 8 E.A.D. 121, 131(EAB 1999)); *accord In re Newmont Nev. Energy Inv., LLC*, 12 E.A.D. 429, 442 (EAB 2005); *In re Gen. Motors, Inc.*, 10 E.A.D. 360, 363 (EAB 2002). Consequently, in evaluating a BACT determination on appeal, the Board looks at whether the determination "reflects 'considered judgment' on the part of the permitting authority," as documented in the record. *Knauf*, 8 E.A.D. at 132; *accord In re Masonite Corp.*, 5 E.A.D. 551, 566-69 (EAB 1994) (analyses incomplete); *In re Austin Powder Co.*, 6 E.A.D. 713, 720 (EAB 1997); *GSX Servs.*, 4 E.A.D. at 454. Petitioner argues that the Illinois EPA by not requiring MLC to construct a natural gas line to provide natural gas service for use during start up and shut down of the kilns, setting emission limits different than other kilns and setting SO_2 BACT limits based on the wrong fuel sulfur content, has committed an error requiring remand. Petitioner has not met the heavy burden set out by the Board for this argument to succeed and the Illinois EPA's decisions on these issues is fully supported by the record.

The Illinois EPA conducted the appropriate BACT analysis in issuing MLC's PSD permit. The Permit describes the emission controls from the kilns as follows; the emissions of the kilns are controlled by a combination of design, work practices and add-on emission control equipment. Emissions of NO_x, CO, and VOM are controlled by design of the kilns and low excess air and good combustion practices. PM emissions are controlled by add-on baghouses

and fabric filters. SO_2 emissions are controlled by the natural ability of the limestone and limestone dust to absorb SO_2, with SO_2then being removed from the flue gas in the dust collected by the fabric filters. *(Petitioner's Exhibit 1, pg. 10).*

1. Appropriate BACT Set For Startup and Shutdown Periods.

Petitioner argues that Illinois EPA should not allow MLC to utilize fuel oil during startup and shutdown periods because it has not done any analysis for BACT during startup and shutdown. Illinois EPA considered both the use of natural gas and fuel oil and in fact that permit appropriately addresses startup and shutdown of the kilns with the requirement to use either distillate fuel oil or natural gas as an alternative low-sulfur fuels *(See Petitioner's Exhibit 1, pg. 11, Conditions 2.1.3-2(c)(ii) and (c)(iii)).* During startup and shutdown of a kiln, the refractory lining of the kiln must be gradually heated or cooled, respectively, to minimize thermal stresses on the refractory. This is accomplished using an auxiliary fuel for several reasons. At the beginning of a startup and at the end of shutdown, the kiln may be too cold to properly fire solid fuel. The firing rate of the secondary fuel may be more readily managed at low firing rates than solid fuel. From an emissions perspective, during startup and shutdown of the kiln, while secondary fuels are being fired, limestone is also not fed into the kiln, so that natural scrubbing would not be present for control of SO2 emission if solid fuel were fired. The fact that this argument overlooks is that the plant site currently does not natural gas service nor is it expected to have natural gas service. As explained on page 18 of the Application Submittal, dated June 11, 2010, *(See State's Exhibit 4),* the cost of tapping into the nearest suitable gas line and installing the piping and other equipment necessary to supply natural gas to the plant, with sufficient capacity for the startup and shutdown of a kiln, is $ 1.75 million. The permit only provides for the use of natural gas in the event that it would become available. In that case, it

should be expected that the kilns would use natural gas during startup and shutdown because natural gas is less expensive than distillate fuel oil.

The cost of constructing a pipeline to serve the plants, estimated at $ 1.75 million cannot be considered cost-effective as secondary fuels need only be used during periods of startup and shutdown, when natural scrubbing is absent, and distillate oil, as compared to solid fuel is a low sulfur fuel.

In conducting a BACT analysis, potentially applicable control technologies identified at step 1 of the top-down method are further evaluated at step 2 in order to eliminate any potentially applicable methods that are not technically feasible. NSR Manual at B.7, B.17-.22. This second step involves first determining for each technology whether it is "demonstrated," which means that it has been installed and operated successfully elsewhere on a similar facility, and if not demonstrated, then whether it is both "available" and "applicable." *Id.* at B.17. The NSR Manual explains:

> [A] technology is considered "available" if it can be obtained by the applicant through commercial channels or is otherwise available within the common sense meaning of the term. An available technology is "applicable" if it can reasonably be installed and operated on the source type under consideration.

NSR Manual at B.17.

Under the NSR Manual's guidance, issues regarding the cost effectiveness of alternative control technologies are considered under step four of the top-down BACT analysis. NSR Manual at B.31-B.46. A control technology that is eliminated under step two, however, does not need to be reviewed under step four. NSR Manual at B.7; *accord In re Haw. Elec. Light,* 8 E.A.D. 66, 84-92 (EAB 1998). *Compare In re Old Dominion Elec. Corp.*, 3 E.A.D. 779, 794-95 (Adm'r 1992) (control technology eliminated as not technically feasible under step two) *with In*

re Masonite Corp., 5 E.A.D. 551, 567 nn.21 & 24 (EAB 1994) (distinguishing cost effectiveness from the review of technical feasibility performed in *Old Dominion*). *In Re Cardinal FG Company, 12 E.A.D. 153, 168 (EAB 2005).*

The Agency did consider natural gas but rejected it for the reasons given, it is not available. Although the NSR Manual generally counsels in favor of a full and detailed impacts analysis at step 4 for each control alternative found to be technically feasible at step 2, if the alternative is not feasible then the full blown cost effectiveness analysis is not needed. BACT determinations must be made on a case-by-case basis and upon the record as developed in the case at hand. *See In re Cardinal FG Co.*, 12 E.A.D. 153, 161 (EAB 2005) ("BACT is a site-specific determination resulting in the selection of an emission limitation that represents application of control technology appropriate for the particular facility."); *see also In re Three Mountain Power, L.L.C.*, 10 E.A.D. 39, 47 (EAB 2001); *Knauf*, 8 E.A.D. 121, 128-29 (EAB 1999).

Petitioner cites to *In Re Northern Michigan University, 14 E.A.D.____(EAD February 18, 2009),* for the proposition that natural gas should have been considered in the BACT analysis and that Illinois EPA should have gone through the required top down analysis, including a cost effectiveness analysis. The major problem with this argument is that as set out above, natural gas simply is not available. Couple that with the fact that solid fuel is used during the operation of the kilns and fuel oil is only used during startup and shutdown, Illinois EPA made the appropriate technical judgment in setting permit conditions for MLC. Petitioner's argument on this point must fail, remand is not appropriate.

2. Illinois EPA's BACT Analysis for MLC's Kilns Considered All Appropriate Factors

Petitioner argues that Illinois EPA ignored similar kilns that have lower emissions than the limits set as BACT for the MLC kilns in the permit issued by the Illinois EPA (*See Petitioner's Petition, pg. 26).* The permit set the emissions for each affected kiln for SO_2 at 0.645 lbs/ton daily on a 24 hour average. (*See Petitioner's Exhibit 1, pg. 11).* Illinois EPA found this represents a nominal control efficiency of over 97 percent based on the design fuel supply for the kilns. Petitioner asserts that the Illinois EPA has apparently not considered the actual SO2emission rates measured at existing kiln and that there is no explanation for how Illinois EPA arrives at 0.645lb/ton based on the pollution controls accepted by Illinois EPA as BACT.

The Illinois EPA is certainly aware that the SO_2 emissions of some lime kilns when tested are lower or much lower than the SO_2 limit set as BACT for the proposed kilns. (*See Appendix D to MLC's Permit Application, Attached hereto as Exhibit 5*). However, this emission data, by itself, is of minimal value for determining BACT in the absence of relevant background information for the tested lime kilns, including data for things such as quality of limestone being processed, kiln type, capacity and size, type(s) of lime being manufactured, nature of the control train, operating rate during testing, fuel consumption and sulfur content. This data would be needed to be able to interpret the results of the test and determine whether they are applicable to the kiln that is being proposed. The need for this data to apply test results across facilities is discussed by USEPA in AP-42. In AP-42 for lime kilns, USEPA notes that "For lime Because of differences in the sulfur content of the raw material and fuel and in process operations, a mass balance on sulfur may yield a more representative emission factor for a specific facility than the SO_2 emission factors presented in Tables 11.17-5 and 11.17-6. Accordingly, the SO_2 BACT limit was determined based on the level of SO_2 control that would be

required to be achieved with the proposed SO_2 control technology, i.e., natural scrubbing. The level of control was calculated from the sulfur content of the design fuel and the design fuel consumption rate, as was explained in the Project Summary. As set forth on page 8 of the Project Summary, "An appropriate SO_2 BACT emission limit with the scrubber is 0.645 lbs SO_2 per ton of lime produced, on a daily or 24-hour average basis. This represents a nominal control efficiency of over 97 percent based on the design fuel supply for the kilns, considering only the SO_2 emissions attributable to sulfur introduced with fuel and disregarding any sulfur retained in the lime product."This level was found to be comparable to level of control that is considered to be achievable by a modern dry scrubber.

BACT for SO_2 emissions from the kilns is determined to be "natural scrubbing," as achieved with the limestone and lime dust produced by the lime kilns and captured by the fabric filters. The proposed plant would produce high-calcium lime from high- calcium limestone. High-calcium limestone and lime are very reactive with an affinity for SO_2. Indeed, Mississippi Lime plans to market the lime product from the proposed plant to coal-fired power plants equipped with scrubbers for control of SO_2 emissions at those plants.

This reaction is facilitated as SO_2 is removed from the flue gas by dust not only in the preheater and ductwork but also as flue gas must pass through the dust cake accumulated on and in the filtration material in the fabric filters. Based on achievement of an actual fuel usage rate by the kilns of 10 tons per hour and a design sulfur content of 3.5 percent, fuel would introduce 700 pounds per hour of sulfur into a kiln, equivalent to 1400 pounds of SO_2 (10 x 0.035 x 2000 = 700, 700 x 2 = 1400). The controlled SO_2 emissions of the kiln based on a BACT limit of 0.645 pounds per ton of lime would be 32.25 pounds per hour (50 x 0.645 = 32.25). The nominal

control efficiency for SO_2 achieved by natural scrubbing would be about 97.5 percent (1 – 32.25/1400)/100 = .977, ≈ 97 percent).

Given the level of SO_2 removal that would be required to be achieved by natural scrubbing, further add-on control equipment is not warranted for SO_2, both because of cost and because of the uncertainty of any significant further reduction in SO_2 emissions with such equipment. In addition, use of natural gas, which would be an essentially sulfur-free clean fuel for SO_2 emissions, is not warranted. While certain lime kilns that produce food grade lime are fired with natural gas, this does not show that the use of natural gas is appropriate for a lime manufacturing plant like the proposed plant, which is being developed to produce various types of general purpose lime. The associated cost for control of SO_2 emissions would clearly be excessive, as it would be in excess of $20,000 per ton of SO_2 controlled. Based on a target firing rate for each kiln of 220 mmBtu/hour and a cost differential of $3 per mmBtu between solid fuel and natural gas, use of natural gas would cost $15,420,000 more dollars per year than natural gas (220 mmBtu/hour x 2 kilns x 8760 hours/year x $3/mmBtu = $11,560,000). Assuming that use of natural gas would reduce emissions of SO_2 to essentially zero, the accompanying reduction in SO_2 emissions would be 283 tons per year. This results in a cost-effectiveness from the use of natural gas that would be about $40,000 per ton of SO_2 controlled ($11,560,000/year ÷ 283 tons/year = $40,847/ton). The cost-effectiveness of use of diesel fuel as the principal fuel for the kilns would be over $200,000 per ton of SO_2 controlled, as the cost of diesel fuel per mmBtu is more than five times more than that of natural gas. The cost-effectiveness of the use of lower sulfur and more costly solid fuels is also excessive. The key factor in all these evaluations of the potential use of alternative fuels is that most of the SO_2 emissions theoretically present with solid

fuel would be controlled by natural scrubbing and as they are already being controlled without any added cost, would not be affected by the use of an alternative fuel.

Petitioner argues that a kiln operated by Western Lime in Schoolcraft County, Michigan has a BACT limit of 0.83 lbs SO_2 per ton of stone feed. Based on a standard yield rate of 2 tons of stone feed per 1.0 ton of lime product, that limit is significantly more stringent than BACT limit for SO2 that would be set in the draft permit.

In fact, the SO_2 BACT limit cited in this comment supports the BACT limit set for the proposed plant. While the argument uses an appropriate factor for the ratio of limestone to lime at a lime kiln, when properly calculated, the equivalent SO_2 emission rate of the kiln in Michigan is 1.66 pounds per ton of lime. To convert from an emission rate expressed per ton limestone to a rate expressed per ton of limestone, one should multiply by two. One divides by two to convert from an emission rate expressed per ton of lime to one expressed per ton of limestone. This is significantly more than the BACT limit set for the proposed kilns, 0.645 pounds per ton of lime.

As the Agency explained in its Response to Comments, *(See Petitioner's Exhibit 3, Responses 39, 40, 41, and 42)*, a key factor is what level of sulfur is trying to be achieved and what type of lime is being manufactured. Test data in and of itself is not always useful in determining why there are differing emission limits at seemingly similar facilities. It appears that Petitioner has chosen one outlier in support of its argument. The Agency explained it needed something more to compare these facilities.

As previously stated, the ultimate BACT decision is made by the permit-issuing authority. *In Re RockGen Energy Center* 8 E.A.D. 536, 541 (EAB 1999). Illinois EPA's decision is well grounded and is accorded technical deference. Petitioner has failed in its burden

to show that the Illinois EPA decision on this issue was clearly erroneous and accordingly the Board should not grant Petitioner's request for review.

3. Illinois EPA Set an Appropriate Safety margin

Petitioner raises an argument that Illinois EPA set unsupportable safety margins for NO_x emissions limits as compared to other kilns. *(See Petitioner's Petition, pg. 27).* In support of preserving this argument for this appeal, Petitioner cites to comment 10 of its comments provided during the public comment period. *(See Petitioner's Exhibit 2, pg. 11).* When evaluating a petition for review of a PSD permit, the Board first considers whether the petitioner has met the threshold pleading requirements, including preservation of issues for review. *See* 40 C.F.R.§ 124.19; *In re Knauf Fiber Glass, GmbH*, 9 E.A.D. 1, 5 (EAB 2000) (*Knauf II*). Among other things, in order to demonstrate that an issue has been preserved for appeal, a petitioner must show "that any issues being raised were raised during the public comment period." 40 C.F.R. §§ 124.13, 124.19(a); *In re Encogen Cogeneration Facility*, 8 E.A.D. 244, 249 (EAB 1999). Moreover, this burden rests squarely with the petitioner — "It is not incumbent upon the Board to scour the record to determine whether an issue was properly raised below." *Encogen*, 8 E.A.D. at 250 n.10.

Further the Board requires that a petitioner's objections to a permit must be both "specific and substantiated," especially where the objection involves the "technical judgments" of the permit authority. *See, In re Avon Custom Mixing Services, Inc.*, 10 E.A.D. 700 (EAB, August 27, 2002). This burden ensures that the issues and/or arguments on appeal are well defined and actually represent a "bona fide" disagreement between the petitioner and the permit authority.

As a threshold matter, Petitioner did not properly raise the "safety margin" argument during the public comment period. The Petitioner only commented that there are other kilns with

differing emission limits. This is not specific enough to define this issue for appeal. Accordingly, the Board lacks jurisdiction to consider Petitioner's review on this issue and review should be denied as Petitioner did not properly raise the "safety margins" argument during the public comment period.

However, if the Board does consider this argument by Petitioner that the NO_x emission limits established as BACT for the MLC permit are higher than those set for other kilns. The Agency provided it's rationale for this decision in the Response to Comment 49. In part the Agency stated that,

> Considering that BACT limits must be achievable, which necessitates a set with a margin of safety to account for normal variation in the effectiveness of control measures, it is reasonable that is 20 percent higher than emission rates measured during testing of the cited kiln.(The NOx BACT limit set for the proposed kilns is almost exactly 20 percent higher than the emission rate cited in this comment. $((3.5 - 2.94) \div 2.94 = 0.19, \approx 20$ percent). Moreover, as the proposed kilns would have continuous emissions monitoring systems for NOx, rather than periodic emission test for NOx, one could argue that measured emissions of the cited kiln support a limit that is higher than the limit that has been set.

(See Petitioner's Exhibit 3, pg. 22).

In setting BACT limits the permitting authority retains a certain amount of discretion and can set limits that while not the highest, do allow the permit holder to achieve compliance on a consistent basis. *See Steel Dynamics, Inc.,* 9 E.A.D. 165, 188 (June 22, 2000). The Board in the past has permitted the use of "compliance margins" or "safety factors" to meet permit limits. In fact the Board has stated that, "There is nothing inherently wrong with setting an emission limitation that takes into account a reasonable safety factor. ... The inclusion of a reasonable safety factor in the emission limitation calculation is a legitimate method of deriving a specific emission limitation that may not be exceeded. *In Re Knauf Fiberglass,* 9 E.A.D. 1, 15

(March 14, 2000). Illinois EPA has met its burden on this issue and Petitioner's argument must fail, review and remand is not appropriate on this point.

4. Illinois EPA Set an Appropriate BACT limit for SO_2 Based on the Fuel Sulfur Content

Petitioner argues that Illinois EPA erred in determining the BACT limits for SO_2 because it used the wrong sulfur content percentage for the coal which will be used as the solid fuel to operate the kilns. Petitioner cites to Page 8, footnote 8 of the Project Summary *(Petitioner's Petition, Exhibit 4)* for this proposition. *(See Petitioner's Petition, pg. 31).*

Actually, footnote 8 did not state that only coal would be utilized as the fuel source for the kilns, it state as follws:

> Based on achievement of an actual fuel usage rate by the kilns of 10 tons per hour and a design sulfur content of 3.5 percent, fuel would introduce 700 pounds per hour of sulfur into a kiln, equivalent to 1400 pounds of SO2 (10 x 0.035 x 2000 = 700, 700 x 2 = 1400). The controlled SO2 emissions of the kiln based on a BACT limit of 0.645 pounds per ton of lime would be 32.25 pounds per hour (50 x 0.645 = 32.25). The nominal control efficiency for SO2 achieved by natural scrubbing would be about 97.5 percent (1 – 32.25/1400)/100 = .977, ≈ 97 percent).

What all this boils down to is that the sulfur content of the solid fuel used by MLC will be limited to 3.5% sulfur. The solid fuel is not just coal; it is a combination of coal and petroleum coke. *(See Petitioner's Exhibit 3, pg. 26, response to Comment 56).* MLC, in order to meet customer specifications for the lime it is producing is limited in the sulfur content of the solid fuel. The sulfur content of the design fuel is highest sulfur content of fuel at which the lime from the kilns would meet customer specifications for product lime. The coal and petroleum coke would be blended to stay within this level. Therefore, the calculations and the revised SO_2

BACT limits set out by Petitioner are not correct. For this reason Petitioner's arguments on this point must fail and review and remand is not appropriate.

C. Retroactive Application of Regulations is not Appropriate

Petitioner takes the position in its Petition that if the Board remands the MLC permit, it should direct the Illinois EPA to ensure compliance with all requirements in effect at the time of the permit issuance after remand. (*See Petitioner's Petition, pg. 32*). What the Petitioner is asking for is retroactive application of regulations. If the Board remands the MLC permit to Illinois EPA, it should not require Illinois EPA to apply any regulations to the permit that took effect after the permit was issued, unless those regulations clearly state that they are to be applied retroactively in that way. Retroactivity is disfavored in the law. *Bowen v. Georgetown Univ. Hosp.*, 488 U.S. 204, 208 (1988). There is a presumption against applying a regulation retroactively unless EPA has made clear that it intends the regulation to apply in that way.

Research has indicated no other applicable regulations that have taken effect since Illinois EPA issued the MLC permit. It is possible that such regulations (e.g., revisions to NAAQS) will take effect during the pendency of the appeal. In spite of this potential, it is pure speculation on the part of Petitioner that there will be future enacted regulations. However, before the Board could require Illinois EPA to apply the new regulations to the permit on remand, it would be required to find that such regulations include a clear intent to apply retroactively to issued permits that are not yet effective.

Although the Board has indicated that it has the discretion to remand permit conditions in light of changed legal requirements, it may not do so in this case because the GHG regulations lack a clear statement that they apply retroactively, and because the permit application proceeding has gone on for several years.

In order to be applied retroactively on remand to an already *issued* permit, the rule must make an affirmative statement that it is intended to be so applied. For example, in *Russell City*, the Board declined to require a permit issuer to consider a recently issued NO_2 NAAQS final rule because "the rule itself does not indicate that it is intended to be applied retroactively to permits for which a final permit decision has already been issued." 15 E.A.D. ___, Case Nos. 10-01, 10-02, 10-03, 10-04 & 10-05, Slip Op. at 111.

Petitioner points to *Shell Gulf of Mexico* for the proposition that new regulations should be applied on remand to already issued permits. (*See Petitioner's Petition, pg. 32*). In support of Petitioner's position, the Board writes, "[T]he Region's determination regarding whether the permits must comply with [NAAQS and GHG regulations that took effect after the permits were issued] depends upon the date on which the Region issues its final permit decisions under [the part 124 regulations] *upon conclusion of the remand proceedings*." 15 E.A.D. ___, Case Nos. OCS 10-01, 10-02, 10-03, 10-04, Slip. Op. at 9 (emphasis added). The holding in *Shell Gulf of Mexico* can be distinguished on a factual basis from this case. *Shell Gulf of Mexico* must be viewed in the context that the permits were remanded, in part, for failure to adequately comply with an environmental justice Executive Order. 15 E.A.D. ___, Case Nos. OCS 10-01, 10-02, 10-03, 10-04, Slip. Op. at 81-82. To demonstrate compliance with the Executive Order, the Region relied exclusively on the fact that the permit would meet existing NO_2 NAAQS standards. *Id.* at 75. However, prior to the Region issuing the permits, the EPA had finalized a rule that indicated that the then-existing NO_2 NAAQS alone did not provide requisite protection of public health, and that established a new 1-hour NO_2 NAAQS. *Id.* at 8. The Board explained why the Region's actions were inadequate,

> The record reflects the Region's singular focus on demonstrating compliance with a NAAQS standard that the Administrator had deemed no longer protective of public heath, and the Region offers no other information or evidence in the record that it considered anything beyond compliance with the NAAQS in preparing the environmental justice analysis that appears in the Chukchi Response to Comments. *Compliance with a NAAQS standard that the Agency has already deemed inadequate to protect the public health cannot by itself satisfy a permit issuer's responsibility to comply with the Executive Order.*

Id. at 75 (emphasis added). Therefore, in this unique context, the Board could require the Region, on remand, to rely on more than outdated NAAQS to demonstrate compliance with the environmental justice Executive Order. The Illinois EPA issued permit in the instant case presents no such unique context. Because the circumstances at issue here are analogous to those in *Dominion* and *Russell City*, should the Board remand the permit, it may not require Illinois EPA to apply regulations that have since come into effect.

The Board in *Dominion* pointed to the length of the permit proceedings as a second factor in its decision whether, on remand, to require the permit issuer to consider rules and regulations that took effect after the initial permit was issued. Consistent with the Administrator's concern in *U.S. Pipe* that "standards and guidelines for preparation of . . . permits must be fixed at some point in time so permit terms can become final and pollution abatement can proceed," NPDES Appeal No. 75-4, the Board is unlikely to require the application of new rules and regulations on remand where the permit proceedings have extended over a number of years. *See Dominion*, 12 E.A.D. at 618 ("The Agency has spent over six years and significant resources and efforts in considering the permit renewal application (and associated proceedings) using the existing standards."); *accord In re Russell City Energy Center, LLC.*, 15 E.A.D. ___, Case Nos. 10-01, 10-02, 10-03, 10-04 & 10-05, Slip Op. at 112 (EAB Nov. 18, 2010) ("[T]hese permit proceedings have been ongoing [for at least four years]. . . . [I]t is possible that another standard may be issued during the remand period, which would . . . result in an endless loop of permit

issuances, appeals, and remands."). The MLC permit proceedings, at roughly two years, have not been as lengthy as those in *Dominion* or *Russell City*. To consider newly effective regulations on remand at this juncture in the permitting process, is inappropriate.

IV. CONCLUSION

For the reasons set forth herein, the Illinois EPA respectfully requests that the Board deny review of all avenues of appeal sought by the Petitioner or, in the alternative, order such relief that is deemed just and appropriate.

Respectfully submitted,

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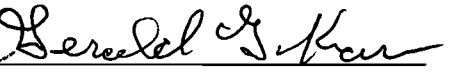
BY: 

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CERTIFICATE OF COMPLIANCE WITH BOARD STANDING ORDER OF APRIL 19, 2011

I, hereby certify that the attached **Response to Petition for Review** complies with the word limitation contained in Paragraph 1 of the Board's April 19, 2011 Order Governing Petitions for Review of Clean Air Act New Source Review Permits.

GERALD T. KARR