TULANE ENVIRONMENTAL LAW CLINIC

October 3, 2012

Via Email (Jackson.lisa@epa.gov) and U.S. Mail
Administrator Lisa P. Jackson
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

RE: Petition Requesting the Administrator to Object to "New" Title V Operating Permits Nos. 2560-00281-V1, 2560-00281-V0, and 3086-V0 Issued to Consolidated Environmental Management, Inc./Nucor Steel Louisiana (Nucor)

Dear Administrator Jackson,

Louisiana Environmental Action Network (LEAN) and Sierra Club submit this Petition pursuant to section 505(b) of the Clean Air Act asking you to object to the above-referenced Title V permits that Louisiana Department of Environmental Quality issued to Nucor. EPA deems the permits "new" based on LDEQ's June 21, 2012 response to your March 23, 2012 Order granting petitions for objection to these permits.[1] *See* Email from DOJ Attorney M Peoples to C. Van Dalen, Sept. 26, 2012, Attachment A. LEAN and Sierra Club disagree that LDEQ's response to EPA's Order creates "new" Title V permits since LDEQ did not submit a revised permit to meet your objections. Indeed, rather than triggering a new petition cycle, LDEQ's response created the duty for you to issue or deny the permits pursuant to Clean Air Act § 505(c) and to take the required steps pursuant to 40 C.F.R. pts. 70 and 71 to terminate, modify, or revoke and reissue Nucor's Title V permits. But to preserve their rights, LEAN and Sierra Club file this Petition seeking an objection for the reasons expressed in their June 24, 2010[2] and May 3, 2011 petitions which they incorporate by reference and attached as Exhibits B and C, respectively.

Moreover, this Petition does not waive LEAN and Sierra Club right to pursue the § 304(a)(2) citizen suit they brought against you to compel perform your non-discretionary duty to grant or deny the petition that LEAN and Sierra Club filed on May 3, 2011 seeking an objection to two of the "new" permits at issue here: Title V Permit Nos. 2560-00281-V1 and 3086-V0. LDEQ's response to EPA's Order did not resolve, moot, or change the matters at issue in LEAN and Sierra Club's May 3, 2011 petition, and they will pursue the response to which they are entitled.

[1] LDEQ never established a period for the public to comment on its response to EPA's objection. For that reason, the public had no opportunity to comment on the response which EPA has now determined amounts to "new permits."

[2] The exhibits for the June 24, 2010 petition are on file with EPA.

Substantially prepared by:

Katie Cordes, Student Attorney

Respectfully submitted by:

Corinne Van Dalen, Supervising Attorney
On behalf of Louisiana Environmental Action Network and Sierra Club

Cc:

Peggy Hatch, Secretary
Louisiana Department of Environmental Quality
602 N. Fifth Street
Baton Rouge, LA 70802

Mr. R. Joseph Stratman
Vice President Nucor
1915 Rexford Rd
Charlotte, NC 28211

LEAN v. Jackson, Case No. 12-1096 (D.D.C.)

Peoples, Monique (ENRD) [Monique.Peoples@usdoj.gov]
Sent: Wednesday, September 26, 2012 12:09 PM
To: Van Dalen, Corinne J
Cc: Melina Williams [Williams.Melina@epamail.epa.gov]

Dear Corinne,

We wanted to make you aware of EPA's position on LDEQ's response dated June 21, 2012. Please be advised that EPA views LDEQ's June 21, 2012, response as a new proposed permit. Thus, if LEAN and Sierra Club wish to raise any remaining issues from their 2010 or 2011 petitions, or any new claims based on the new proposed permit, the proper course would be to submit a Title V petition, as described on pages 16-17 and footnote 9 of EPA's March 23, 2012, Order Granting Petitions for Objection to Permits. The deadline for filing a petition is October 3, 2012, based upon EPA's receipt of the proposed permit on June 21, 2012.

Best regards,

T. Monique Peoples, Esq.
Environmental Defense Section
(202) 514-9365

Attachment A

BEFORE THE ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTIION AGENCY

In the Matter of the Title V Air Operating Permit
for a Pig Iron Manufacturing Plant
St James Parish, Louisiana

Permit No.: 2560-00281-V0
Activity No.: PER200080001
LDEQ Agency Interest No.: 157847

Issued to Consolidated Environmental
Management, Inc./Nucor Steel, Louisiana
By the Louisiana Department of Environmental Quality

PETITION REQUESTING THE ADMINISTRATOR TO OBJECT TO THE TITLE V OPERATING PERMIT NO. 2560-00281-V0 ISSUED TO NUCOR STEEL

Pursuant to section 505(b) of the Clean Air Act, 42 U.S.C. § 7661d(b)(2) and 40 C.F.R. § 70.8(d), Louisiana Environmental Action Network and Sierra Club petition the Administrator of the U.S. Environmental Protection Agency to object to the Title V Air Operating Permit (No. 2560-00281-V0, "permit") issued on May 24, 2010 by the Louisiana Department of Environmental Quality ("LDEQ") to Consolidated Environmental Management Inc., Nucor Steel Louisiana ("Nucor") for a pig iron manufacturing facility in Romeville, Louisiana.

Sierra Club and LEAN base this petition on comments they filed with LDEQ on 11/24/08, 4/19/10 and 5/3/10, during the public comment periods established by LDEQ on drafts of the permit. Sierra Club and LEAN also base this petition on objections to the permit that were raised in comments submitted by the EPA, Zen-Noh Grain, Strata Environmental, and others to LDEQ during the public comment periods. A qualified engineer, J. Phyllis Fox, PhD, PE, DEE, and a qualified meteorologist, Camille Sears, prepared the technical analyses in these comments. Petitioners incorporate by reference their comments.

SUMMARY

"[W]ithin 60 days after the petition is filed[,] [t]he Administrator shall issue an objection . . . if the petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements of [the Clean Air Act], including the requirements of the applicable implementation plan." 42 U.S.C. 7661d(b)(2). In reviewing a Title V petition, the Administrator will "generally look to see whether the Petitioner has shown that the state did not comply with its SIP-approved regulations governing PSD permitting or whether the state's exercise of discretion under such regulations was unreasonable or arbitrary."[1] This inquiry includes whether the permitting authority "(1) follow[ed] the required procedures in the SIP; (2) [made] PSD determinations on reasonable grounds properly supported on the record; and (3) describe[d] the determinations in enforceable terms."[2]

Nucor's Title V Permit violates the following Clean Air Act and the Louisiana implementation plan for the following reasons:

- The permit fails to include Maximum Achievable Control Technology ("MACT") standards as required by § 112 of the Act.

  The permit violates the Clean Air Act § 112 by failing to impose case-by-case MACT standards for the hazardous air pollutants from the facility's topgas boiler. Currently, there is no emission standard for this boiler promulgated by EPA. Therefore, Nucor must obtain a case-by-case MACT determination (following proper notice requirements) from LDEQ before it can obtain a Title V permit. 42 U.S.C. § 7412(j)(5) (requiring permitting agency to include "emission limitations for the hazardous air pollutants subject to regulation under [§ 112 of the Act] and emitted by the source that the Administrator (or the State) determines, on a case-by-case basis, to be equivalent to the limitations that

[1] *In the Matter of Louisville Gas and Electric Company*, Trimble County, Kentucky (hereinafter "*Trimble*"), Part 70/PSD Air Quality Permit # V-02-043 Revisions 2 and 3, Order Responding to Issues Raised in April 28, 2008 and March 2, 2006 Petitions, and Denying in Part and Granting in Part Requests for Objection to Permit, August 12, 2009, at 5 (citing *In re East Kentucky Power Cooperative, Inc. (Hugh L. Spurlock Generating Station)*, Petition No. IB-2006-4 (Order on Petition) (August 30, 2007); *In re Pacific Coast Building Products, Inc*. (Order on Petition) (December 10, 1999); *In re Roosevelt Regional Landfill Regional Disposal Company* (Order on Petition) (May 4, 1999)).

[2] *Trimble* at 5 (citing 68 Fed. Reg. 9,892 (March 3, 2003) and 63 Fed. Reg. 13,795 (March 23, 1998)).

would apply to such source if an emission standard had been promulgated in a timely matter" pursuant to § 112).

The permit also violates § 112 of the Act by failing to impose the MACT requirement for charging non-recovery coke oven batteries. To meet the MACT standard, the permit must Nucor to "install, operate, and maintain an emission control system" for the charging operation. 40 CFR § 63.303(b)(2). The permit requires no emission control system for the charging operations. Therefore, it does not comply with this basic element of the NESHAP rule.

- Nucor's air modeling does not meet PSD requirement.

  Nucor inappropriately used Significant Impact Levels to justify its modeled Class I PSD increment violations. Nucor also failed to monitor low wind speeds, which the Act requires to verify compliance with the NAAQS and Class II PSD increments. Moreover, Nucor neglected to include contributions from secondary particulate formation when determining that Class I Area PM10 impacts are insignificant.

  Nucor also failed to gather any preconstruction air monitoring data prior to their permit application. Cannot Use Significant Impact Levels to Justify Modeled Class I PSD Increment Violations

- The monitoring provisions are inadequate to determine continuous compliance under PSD regulations.

  The permit fails to provide measures to enforce the emission rate limits in the PSD permit to assure the emissions do not violate NAAQS. Testing for compliance with NESHAPS and ambient monitoring does not assure compliance with PSD requirements.

For these reasons, the Administrator should object to the Permit within 60 days upon receipt of this petition, as required by § 505 of the Act, because it violates the applicable requirements of the Act and the Louisiana implementation plan. 42 U.S.C. 7661d(b)(2). The Administrator should revoke the Permit upon her objection. 42 U.S.C. 7661d(b)(3).

Petitioners also ask the Administrator to "take such measures," as required by § 167 of the Clean Air Act, "including issuance of an order, or seeking injunctive relief, as necessary to prevent the construction" of the Nucor facility because it "does not conform to the requirements of [Part C—Prevention of Significant Deterioration—of the Act]." 42 U.S.C. 7477; *see Alaska*

Dept. of Envtl. Conservation v. EPA, 540 U.S. 461 (2004) (allowing EPA to stop construction of project pursuant to § 167).

Sierra Club and LEAN adopt and incorporate by reference, as if fully set forth herein, the comments, facts, and arguments set forth in the Petition for EPA Objection filed by Zen-Noh Grain Corporation on June 25, 2010.

PROCEDURAL REQUIREMENTS

LDEQ transmitted a draft permit to the Administrator for review on March 11, 2010, triggering EPA's 45-day review period as required by CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2). Sierra Club and LEAN file this petition within sixty days following the end of EPA's review period as required by CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2). The Administrator has sixty days to grant or deny this Petition. *Id.* Since LDEQ has issued the permit, "the Administrator shall modify, terminate, or revoke such permit" upon its objection. 42 U.S.C. § 7661d(b)(3).

SPECIFIC OBJECTIONS

I. THE PERMIT FAILS TO APPLY APPROPRIATE MACT STANDARDS AND, THUS, VIOLATES THE CLEAN AIR ACT.

A. The Permit Fails to Apply MACT Standards for the Topgas Boiler.

The permit violates the Clean Air Act § 112 by failing to impose case-by-case maximum achievable control technology (MACT) standards for the hazardous air pollutants from the facility's topgas boiler. Section 112 requires the permitting agency to include "emission limitations for the hazardous air pollutants subject to regulation under [§ 112 of the Act] and emitted by the source that the Administrator (or the State) determines, on a case-by-case basis, to be equivalent to the limitations that would apply to such source if an emission standard had been promulgated in a timely matter" pursuant to § 112. 42 U.S.C. § 7412(j)(5). Therefore, EPA must

issue an objection to the permit under 42 U.S.C. 7661d(b)(2) because Nucor's permit does not contain such emission limitations for its topgas boiler. Furthermore, construction of the facility would be illegal under Clean Air Act. 42 U.S.C. § 7412(g)(2)(B) (prohibiting construction where major source lacks determination that it will meet MACT emission limitations).

The facility's hazardous air pollutant emissions exceed major source threshold of 10 ton/yr single pollutant and 25 ton/yr for all.[3] Nucor's topgas boiler fits within EPA's source category for industrial boilers.[4] Clean Air Act § 112(c) required EPA to create source categories for major sources that emitted one or more hazardous air pollutants listed in §112(b) by November 15, 2000.[5] In September 2004, EPA published a standard for industrial boilers.[6] On June 8, 2007, however, the U. S. Court of Appeals for the D. C. Circuit vacated that rulemaking "in its entirety."[7]

Because the D.C. Circuit vacated the emission limitations for industrial boilers, there are currently no source-specific emissions limitations for industrial boilers. The vacature, thus, triggered § 112(j)—the so-called "hammer provision," requiring LDEQ to set the limits for hazardous air emissions from Nucor's topgas boiler on a case-by-case basis. 42 U.S.C. § 7412(j).

Instead of submitting an application for a case-by-case MACT determination for its topgas boiler, Nucor told LDEQ that "[a]t such time as EPA reissues a MACT standard for

[3] *See* HAP emissions in table at front of Title V Permit indicating 106.91 ton/yr total HAPs.
[4] 40 C.F.R. 63.7575 (2009) ("[A] boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity.").
[5] 58 Fed. Reg. 63941 (Dec. 3, 1993).
[6] 69 Fed. Reg. 55,218 (Sept. 13, 2004), promulgated pursuant to section 112 of the Clean Air Act (CAA), 42 U.S.C. § 7412; see also 70 Fed. Reg. 55,568 (Sept. 22, 2005), amending Standards of Performance for New Stationary Sources and Emissions Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units, 65 Fed. Reg. 75,338 (Dec. 1, 2000) (CISWI Rule), promulgated pursuant to CAA section 129, 42 U.S.C. § 7429
[7] *Natural Resources Defense Council v. E.P.A.*, 489 F.3d 1250, 1252, (D.C. Cir. June 08, 2007).

boilers and process heaters, Nucor will comply with the provisions of the rule by the compliance date indicated."[8] LDEQ then granted the permit to Nucor based on Nucor's promise that it would comply with the MACT standards in the future when promulgated by EPA. However, LDEQ's decision to issue the permit without a case-by-case determination violates 42 U.S.C. § 7412(j).[9] The permit is also invalid because it fails to "include enforceable emission limitations and standards . . . as are necessary to assure compliance with applicable requirements of this Act." 42 U.S.C. § 7661c (mandating conditions for Title V permits).

Indeed, in 2008, a federal district court considered the implications of § 112(g) when an air standard is vacated.[10] The district court analyzed whether a coal-fired plant was subject to a 1990 EPA rule that added such plants to the list of source categories that must meet CAA § 112 requirements after the D.C. Circuit Court vacated a 2005 rule by EPA delisting the plants.[11] The court found that coal-fired plants remain on the list subject to § 112(g),[12] and that the "current law required a full case-by-case type MACT process . . . ."[13] For support, the court relied on: *Nat'l Fuel Gas Supply Corp. v. F.E.R.C.*, 313 U.S. App. D.C. 293, 59 F.3d 1281, 1289 (D.C. Cir. 1995) ("In sum, the decision of a federal court must be given retroactive effect regardless whether it is being applied by a court or an agency."); *Harper v. Virginia Dep't of Taxation*, 509 U.S. 86, 97-98, 113 S. Ct. 2510, 125 L. Ed. 2d 74 (1993); James B. Beam Distilling Co. v. Georgia, 501 U.S. 529, 540, 111 S. Ct. 2439, 115 L. Ed. 2d 481 (1991) ("[T]he question is

[8] Nucor June 2009 Title V/PSD Application, 2-5.
[9] *See also* La. Admin. Code tit. 33, pt. III, § 517.D.13 (requiring permit applications for major sources to contain "a demonstration that the source meets all applicable maximum achievable control technology (MACT) and ambient air quality standard requirements.
[10] *Southern Alliance for Clean Energy v. Duke Energy Carolinas*, 2008 WL 5110894 (W.D.N.C. 2008).
[11] *Id.* at 3-4.
[12] *Id.*
[13] *Id.* at 10.

whether it is error to refuse to apply a rule of federal law retroactively after the case announcing the rule has already done so. We hold that it is[.]").

B. The Permit Fails to Comply With Charging Requirements for Coke Over Batteries.

NESHAPS at 40 CFR 63, Subpart L (40 CFR 63.303(b)(2)) requires use of a control device for coal charging emissions. Nucor requested an exclusion from NESHAP compliance based on its plan to compact the coal.[14] Nucor requested *no controls* for this redefined process and LDEQ issued the permit with a permit shield excusing Nucor from complying with NESHAPS for coal charging.[15]

For reasons discussed in a comments submitted by Strata Environmental,[16] Sierra Club and LEAN urge the Administrator to object to the permit based on LDEQ's failure to comply with 40 CFR 63, Subpart L.

C. The Permit Fails to Apply MACT Standards for the Heat Recovery Coke Ovens.

The permit violates the Clean Air Act § 112 by failing to impose case-by-case maximum achievable control technology (MACT) standards for the hazardous air pollutants from the facility's heat recovery coke ovens. Hazardous air pollutant emissions exceed major source threshold of 10 ton/yr single pollutant and 25 ton/yr for all.[17] "Coke ovens" are listed under § 112(d)(8) of the Act.

There are two types of coke ovens: byproduct and heat recovery. By product has been most common in US. EPA has promulgated NESHAPS for only byproduct coke ovens, 40 CFR

[14] *See* Nucor letter to LDEQ (7/25/08), attachment A.
[15] See Title V Permit, Conditions 22 and 109.
[16] Ltr. from Kevin D. Parr, P.E. of Strata Environmental to LDEQ (9/29/08 and resubmitted 5/2/10), attachment B. LDEQ refers to the comments made in this letter as comments 154-158 in its RTC. *See also* RTC, 169, 198, 264.G.
[17] *See* HAP emissions in table at front of Title V Permit.

63, Subpart CCCCC and Subpart L. EPA has not promulgated NESHAPS for heat recovery ovens. Thus, § 112 requires Nucor to obtain a case-by-case MACT determination from LDEQ for its heat recovery ovens. 42 U.S.C. § 7412(j)(5) (requiring the permitting agency to include "emission limitations for the hazardous air pollutants subject to regulation under [§ 112 of the Act] and emitted by the source that the Administrator (or the State) determines, on a case-by-case basis, to be equivalent to the limitations that would apply to such source if an emission standard had been promulgated in a timely matter" pursuant to § 112).

Therefore, EPA "shall issue an objection" to the permit as required under 42 U.S.C. 7661d(b)(2) because Nucor's permit does not contain such emission limitations for its heat recovery ovens. Furthermore, construction of the facility would be illegal under Clean Air Act. 42 U.S.C. § 7412(g)(2)(B) (prohibiting construction where major source lacks determination that it will meet MACT emission limitations).

Sierra Club and LEAN also incorporate by reference into this argument the following: (1) comments they submitted to LDEQ on 11/24/08, pages 3-4, and referred to as comment 3 in LDEQ's response to comments; and (2) comments that Zen-Noh Grain submitted to LDEQ on April 19, 2010, and referred to as comment 265 in LDEQ's response to comments.

II. THE MODELING SUBMITTED BY NUCOR TO SUPPORT ITS PSD ANALYSIS IS FLAWED.[18]

A. Nucor Cannot Use Significant Impact Levels to Justify Modeled Class I PSD Increment Violations.

Cumulative source modeling performed by Nucor identified violations of the PSD SO_2 increments:

[18] The comments in the section were prepared with the assistance of Camille Sears who is a meteorologist.

> The results of the refined cumulative source modeling for the maximum normal operating scenario, maintenance case lA, and maintenance case 2A are given in Tables 6-16 through 6-18, respectively. For the normal operating scenario, the 24-hour and 3-hour highest second highest concentrations are 31.9 µg/m^3 and 62.9 µg/m^3, and are above the respective Class I PSD increments of 5 µg/m^3 and 25 µg/m^3. For maintenance case lA, the 24-hour and 3-hour highest second highest concentrations are 31.9 µg/m^3 and µg/m^3, and are above the respective Class I PSD increments of 5 µg/m^3 and 25 µg/m^3. For maintenance case 2A, the 24-hour and 3-hour highest second highest concentrations are 31.9 µg/m^3 and 62.9 µg/m^3, and are above the respective Class I PSD increments of 5 µg/m^3 and 25 µg/m^3.[19]

Nucor then argues that its impacts are below the Class I Significant Impacts Levels (SILs) on the day and location that it modeled the PSD increments. From Nucor's permit application:

> In order to prove that the proposed plant does not have an adverse impact on Breton NWR, on each day/receptor that the total SO_2 concentration exceeds the PSD Class I increment, the fraction of that SO_2 concentration due only to the proposed plant must be below the Significant Impact Increment.[20]

However, Nucor's use of Class I area SILs to counter findings of NAAQS and PSD increment violations is inconsistent with a recent court opinion on this matter. The Wyoming Supreme Court, in its March 5, 2010 Dry Fork air permit opinion, stated that SILs can be used in the subject PSD application only to determine whether a full (cumulative) PSD increment analysis is required.[21] Using SILs to determine whether the proposed project will have significant impacts at a location where PSD increment violations are predicted is inappropriate.[22]

1. LDEQ's RTC 274 improperly interprets the Dry Fork decision.

CAA § 165(a)(3) states that no major emitting facility may be constructed unless the owner or operator of the facility can demonstrate that "emissions from construction or operation of such facility will not cause, or contribute to, air pollution in excess of any (A) maximum

[19] Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, 1 of 4, June 2009, p. 6-19.
[20] *Id*.
[21] *Powder River Basin Resource Council, et al. v. Wyoming Dept. of Envtl. Quality, et al.,* No. S-09-0037 (Wy. S. Ct. 3/5/2010), attached as Supp. Exh. A.
[22] *Id.* pp 5-15.

allowable increase or maximum allowable concentration for any pollutant in any area to which this part applies more than one time per year, (B) national ambient air quality standard in any air quality control region, or (C) any other applicable emission standard or standard of performance under this chapter." 42 USC 7475(a)(3).

The *Dry Fork* decision is analogous to the case at hand and it clearly stated that the state permitting authority does not have discretion to determine whether an air concentration that exceeds PSD increment levels contributes to a violation based on the use of SILs in the cumulative analysis. 2010 WY 25, ¶ 29. The *Dry Fork* decision permits the use of SILs in a screening analysis to determine whether a cumulative analysis is necessary. Id. at ¶ 23. This is done by first looking at whether the air concentration caused by emissions from a proposed source will exceed the de minimis, or significance, levels as listed in 40 C.F.R. § 51.165(b). 2010 WY 25, ¶ 23. If the modeled air concentrations do exceed this level then a cumulative analysis must be performed. Id. If a cumulative analysis shows that a facility would cause or contribute to violations of NAAQS or PSD increments then the facility shall not be permitted for construction. See CAA § 165(a)(3).

The Nucor facility models indicated that the facility will emit pollutants that cause air concentrations in excess of the SILs and, therefore, the facility was required to complete a cumulative analysis. The cumulative analysis demonstrated that emissions from the facility would cause or contribute to violations of both the NAAQS and PSD increments. However, the LDEQ still permitted the facility on the basis that Nucor's contribution to these violations of NAAQS and PSD increments was not significant. The LDEQ had no authority to grant a permit on this basis. CAA § 165(a)(3) clearly states that no major emitting facility may be constructed unless the owner or operator of the facility can demonstrate that "emissions from construction or

operation of such facility will not cause, or contribute to, air pollution in excess of any (A) maximum allowable increase or maximum allowable concentration for any pollutant in any area to which this part applies more than one time per year, (B) national ambient air quality standard in any air quality control region, or (C) any other applicable emission standard or standard of performance under this chapter." 42 USC 7475(a)(3). The Nucor facility is a major emitting facility that will cause or contribute to a violation of the NAAQS and PSD increments and, therefore, the CAA prohibits its construction.

The statutory language plainly states that any contribution by a facility to a violation of NAAQS or PSD increments prohibits construction of the facility. CAA § 165(a)(3). The statute does not state that the contribution must be significant in order for the construction to be prohibited. Id.

The LDEQ referenced the Prairie State decision by the EAB to indicate support from the EPA for the use of SILs in accordance with LDEQ's methods. See LDEQ RTC 260.B. However, the EPA has made clear in other circumstances that such a use of SILs is improper. In 2002, the EPA commented on North Dakota's proposed SIP by stating:

> [I]t is EPA's position . . . that it is not appropriate to establish Class I significance levels when an increment violation already exists. We believe any impact (not just one that is "significant") on a receptor in a Class I area that shows a violation of the PSD increment would be considered to contribute to that violation. Furthermore, we believe that, even if some of the impacts are relatively small they are still contributing to an existing problem.

Letter from Richard R. Long, EPA, to Terry L. O'Clair, North Dakota Department of Health, April 12, 2002. Therefore, the EPA's position on the appropriateness of the LDEQ's use of SILs is at best unclear and inconsistent.

LDEQ's RTC stated that the Dry Fork decision is based on a peculiarity of Wyoming law. See LDEQ RTC 260.B. However, while the language of the Wyoming and Louisiana

statutes do differ, the goal of both is to ensure that a facility is not constructed that causes or contributes to violations of NAAQS or PSD increments. The Wyoming statute states "A permit to construct . . . shall be issued only . . . if the predicted impact (over and above the baseline that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions, including secondary emissions, would not cause or contribute to air pollution in violation of: 1. Any national ambient air quality standard in any air quality control region; or 2. Any applicable maximum allowable increase over the baseline concentration in any area." The peculiarity it seems that LDEQ is referring to is that the Wyoming regulation specifically states that the determination is based on the predicted impact. However, the Louisiana statute requires a demonstration in order for LDEQ to make its determination of whether the emissions will violate NAAQS and PSD increments. Because the facility has not yet been constructed, the "demonstration" referred to in the Louisiana statute must be a model. Therefore, the statutes, while worded differently, require a determination to be made based on modeled values.

2. Significant Impact Levels are Limited to the NAAQS and could only Apply to the Locality of Modeled Violations.

The concentration) of emissions defined above is less than the maximum allowable increment shown in Table I for the classification of the area in which the impact is predicted." The applicable Louisiana statute states "The owner or operator of the proposed source or modification shall demonstrate concept of SILs, as set forth in regulation or statutes, is limited to the NAAQS. The Clean Air Act regulation says:

> A major source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard:

40 C.F.R. § 51.165(b)(2). This regulation also includes a table setting forth NAAQS SILs. For example, the significance level is 5 $\mu g/m^3$ for the 24-hour average PM_{10} NAAQS. Notably, these SILs apply only to NAAQS, and not for the PSD increments.

The NAAQS SILs regulation does not allow for the exemption of modeled violations when Nucor's *contribution* is below the significance threshold *at the time and location* of each of the predicted violations. The regulations say nothing about matching time to a location as an exemption. Furthermore, the regulations specify locality, not location. In all air dispersion models, location refers to a receptor – a specific x and y coordinate used to determine the relationship to the emission sources. The keyword "locality," however, clearly applies to a broader region, such as the zone of impact or even the air quality control region, not a specific modeled receptor. This is an important distinction because modeling receptors are spaced on a grid and do not necessarily capture each point in space – meaning the highest impacts and all areas of violations are not necessarily found by the model.

3. *The Draft 1990 NSR Workshop Manual Cannot be Relied on for Justifying PSD SILs.*

The NSR Workshop Manual lists a SIL of 5 $\mu g/m^3$ for 24-hour average PM_{10} increments. Using SILs for PSD increment compliance, however, is unsupported by Regulation. Although LDEQ did not reference the 1990 Draft NSR Manual in support of using SILs for PSD applications, this draft document is sometimes called upon as a supporting reference on this matter.

Using SILs for PSD increment analysis cannot be justified simply because it is listed in EPA's, New Source Review Workshop Manual (Draft), October 1990. The Manual, while valuable for some purposes, is not a final agency action and is not law. Moreover, the Manual is helpful when it explains how to implement the Clean Air Act and regulations, but it does not,

cannot, and is not intended to supersede regulatory statutes and requirements. The Manual has not been subject to EPA's peer and administrative review, nor has EPA approved it for publication as a final EPA document. In fact, the Manual says:

> This document was developed for use in conjunction with new source review workshops and training, and to guide permitting officials in the implementation of the new source review (NSR) program. *It is not intended to be an official statement of policy and standards and does not establish binding regulatory requirements; such requirements are contained in the regulations and approved state implementation plans*. Rather, the manual is designed to (1) describe in general terms and examples the requirements of the new source regulations and pre-existing policy; and (2) provide suggested methods of meeting these requirements, which are illustrated by examples. *Should there be any apparent inconsistency between this manual and the regulations (including any policy decisions made pursuant to those regulations), such regulations and policy shall govern*.

EPA's, New Source Review Workshop Manual (Draft), October 1990, Preface (emphasis added).

Additionally, because EPA has not updated the Manual for almost 20 years, it is outdated in some ways. For example, the Manual discusses SILs for PM_{10}, even though there were no PM_{10} PSD increments in existence at the time – only total suspended particulates (TSP) increments existed in 1990. PSD increments for PM_{10} were not established until 1993. Therefore, the Manual could not have made any conclusions as to the appropriate SILs for PM_{10} increments. Further still, the Manual merely copies the NAAQS SILs at the time, which EPA did not establish based on any analysis of increments, or the need to protect increments.

4. SILs Should Never Apply to the Time of Modeled Violations.

Both the 1988 Emison memo and the 1990 Draft NSR Workshop Manual take the use of SILs one step beyond the NAAQS SILs as defined in Section 40 CFR 51.165(b)(2). The Emison memo and the draft NSR Workshop Manual assert that project impacts are significant only if they exceed the SIL at the location *and time* of the identified increment violation. In other words, existing sources can exceed the PSD increment or NAAQS at a certain receptor and time

(day for 24-hour impacts), but unless the project impacts are above the SIL at the exact same location and time of the PSD increment or NAAQS violation, the project impacts are deemed insignificant. This is clearly beyond the intent of SILs set forth in Section 40 C.F.R. § 51.165, and is clearly interfering with the intentions of the Clean Air Act.

Moreover, air dispersion models, such as AERMOD, are not designed to pinpoint project impacts at specific locations and time periods. LDEQ's significance requirement that Nucor's emissions must contribute above the SIL at a modeled receptor point at the specific time when that receptor point shows a violation implies a false level of model accuracy.

Using models to determine whether the project contribution is above or below the SIL at the time and location of each of the predicted violations stresses the models beyond their intended use. The EPA Guideline on Air Quality Models discusses the poor performance of models at a specific time and site:

> Models are more reliable for estimating longer time-averaged concentrations than for estimating short-term concentrations at specific locations; and (2) the models are reasonably reliable in estimating the magnitude of highest concentrations occurring sometime, somewhere within an area. For example, errors in highest estimated concentrations of ± 10 to 40 percent are found to be typical, *i.e.*, certainly well within the often quoted factor-of-two accuracy that has long been recognized for these models. However, estimates of concentrations that occur at a specific time and site, are poorly correlated with actually observed concentrations and are much less reliable.

EPA Guideline on Air Quality Models, Section 9.1.2.

The exemption of modeled violations, when the project contribution is below the SIL at the time and location of each of the predicted violations, is relying on a situation where model performance is particularly poor. In essence, the model performance is generally reliable in a given locality, but is much less reliable at a specific paired time and location.

It is also important to note that Nucor modeled a grid of receptor locations, in 100 or 500-meter increments. In its effort to determine whether the project contribution is below the

significance threshold at the time and location of each of the predicted violations, Nucor would have to model infinitely more receptors to identify all possible source-to-receptor combinations. Nucor did not do this, nor is it feasible to do.

5. NAAQS SILs Inadequately Protect PSD Increments.

Using NAAQS SILs for PSD increments results in inadequate protection of the increments. PSD increments are much smaller values than the respective NAAQS and a SIL may represent an insignificant percentage of a NAAQS, while representing a larger percentage of the increment. This concern is particularly real for the 24-hour PM_{10} increment, as demonstrated in the table below:

Regulatory Criteria	Regulatory Standard	SIL	Statute or Rule for SIL	SIL as % of Regulatory Standard
24-hr PM_{10} NAAQS	150 µg/m^3	5 µg/m^3	40 CFR 51.165	3.3%
24-hr PM_{10} Increment	30 µg/m^3	5 µg/m^3	None	16.7%

LDEQ's practice of using NAAQS SILs for Nucor's PM_{10} PSD increment analysis is unlawful. The 24-hour PM_{10} NAAQS is five times the allowable PSD increment, yet LDEQ uses the same SIL for both the NAAQS and PSD increment. Furthermore, the NAAQS SIL represents greater than 16 percent of the total increment, while it is about three percent of the NAAQS. In other words, the NAAQS SIL may safeguard the NAAQS (when applied as in Section 40 CFR 51.165(b)(2)), but it cannot provide the same protection for PSD increments. Any protective property of the NAAQS SIL is lost when it is applied to both the specific location and time of the modeled impact.

Using NAAQS SILs for PSD increment analyses also encourages piecemealing of projects. Nucor is planning to build their Convent project in phases, eventually adding a steel production component. By developing their plant in stages, only the modifications are subject to the significant impact analysis. If, for example, Nucor's steel plant addition has PM_{10} impacts below the NAAQS SIL, then their entire modification would be exempt from cumulative PSD increment consumption analyses.

Lastly, using SILS for NAAQS, as specified in Section 40 C.F.R. § 51.165(b)(2), makes sense for regulatory applications. PSD increments, however, are much lower values than NAAQS and are not protected with regional ambient air monitoring networks and other SIP-planning requirements in the same way that NAAQS should be monitored and protected. NAAQS violations can be detected and corrected through the Clean Air Act, whereas without full modeling analysis, increment violations are never detected or prevented.

B. Nucor's Air Modeling Uses Baton Rouge Airport Wind Data, Which Excludes Low Wind Speeds Necessary for Verifying Compliance with the NAAQS and Class II PSD Increments.

Nucor used five years of surface meteorological data collected at the Baton Rouge Airport for its modeling analysis. Nucor processed this data (2001 through 2005) so that it could use it in the recently-approved USEPA AERMOD air dispersion model. However, for air dispersion modeling purposes, airport wind data are among the least desirable. The EPA, in its Meteorological Monitoring Guidance for Regulatory Modeling Applications, summarizes these concerns as follows:

> For practical purposes, because airport data were readily available, most regulatory modeling was initially[23] performed using these data; however, one should be aware that airport data, in general, do not meet this guidance.[24]

[23] Modelers initially used airport data for simpler Gaussian dispersion models such as ISCST, ISCST2, and even ISCST3—and for older, less-refined models such as MPTER, CRSTER, and COMPLEX-I/II.

The main problem with airport data, even recent data collected using Automated Surface Observing Systems (ASOS) instruments, is that all wind speeds less than three knots (about 1.5 meters/second) are automatically regarded as calm, even if the wind is not entirely still. Calm hours are reported as 0.0 meter/second, and are then excluded from the modeling analysis. This is true even with the latest EPA model, AERMOD.

The purpose of the airport calm reporting procedure is simple: *winds less than three knots do not pose a concern for pilots, so airports identify all low wind speed conditions as calm*. The problem with using these data for air permitting is that the best wind conditions for landing and take offs (low wind speeds) are typically the worst-case conditions for air pollution impacts.

Low wind speeds (less than or equal to 1.0 meter/second) are usually associated with peak air quality impacts because modeled impacts are *inversely* proportional to wind speed. This is particularly true for low-level emission sources, such as fugitive dust from roads and material storage and handling at iron and steel facilities. Using airport data, with no winds less than 1.5 meters/second, gives an under-prediction bias by eliminating most of the worst-case modeling conditions. In other words, what is good for pilots is bad for air quality.

Following EPA guidance, wind speed measuring devices (anemometers) should have a starting threshold of 0.5 meter per second (about one knot) or less.[25] In effect, airport wind speed data have a starting threshold *over three times* that level.

Nucor's permit application modeling used five years of meteorological data collected at the Baton Rouge Airport. Using airport data, which are always sanitized of any wind speeds less than 1.5 meters/second, results in severely underestimated modeled impacts. This concern is

[24] USEPA, Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-05, February 2000, p. 1-1.
[25] *Id.*, p. 5-2.

particularly true in this matter, as Nucor's 24-hr PM_{10} air modeling results are over 93% of the available PSD increment.

The wind data collected at the Baton Rouge Airport are simply inadequate to provide AERMOD with the required parameters needed for verifying compliance with the NAAQS and PSD increments. Just because one can run AERMOD with airport data does not imply that one should do so.

The meteorological data files from the Baton Rouge Airport include an extremely large percentage of calm hours. Out of a possible 43,824 hours in the Baton Rouge five-year modeling data set (2001 through 2005), there are 10,082 calm hours. This represents over 23% of the total data set. Typically, when properly measured with modern anemometers, there are only a few percent calm hours in a meteorological data base per year.[26] In addition, the five years of Baton Rouge Airport data modeled by Nucor have 3,555 missing hours. Since neither calm nor missing hours can be used by AERMOD, over 31.1% of the meteorological data are discarded. In total, less than 69% of the total data are actually used in Nucor's modeling analysis. As discussed above, these missing hours contain the worst-case dispersion conditions and excluding them from the modeling will underestimate project impacts.

Without a doubt, the conditions most crucial for verifying compliance with the NAAQS and PSD increments (low wind speeds) are excluded from the Nucor modeling analysis because they are using 2001-2005 Baton Rouge Airport wind data. This is particularly disconcerting given that AERMOD is designed to handle wind speeds down to 0.28 meter/second, while older, less-refined models cannot do so.

[26] For example, the LDEQ wind data for Baton Rouge Capitol include only 88 calm hours for year 2008. Other LDEQ wind data sets have a few percent calms per year.

Sensitive and accurate measurements of wind speeds are necessary for measuring winds down to 0.5 meter per second or less, which can then be used as valid hours in the air dispersion modeling analyses. There would be no need to label such low wind speed hours as calm, which will greatly increase the number of hours included in the modeling analyses. It is these low wind speed hours that must be included in the modeling data set for realistically verifying Nucor's compliance with the NAAQS and PSD increments.

1. LDEQ's Understanding of How AERMOD Treats Calm Hours is Incorrect.

Zen-Noh Grain Corporation submitted comments on the proposed Nucor facility, dated November 24, 2008.[27] Specifically, Comment # 129 in LDEQ's Response to Comments focused on the concerns caused by the high percentage of calm winds in the meteorological data set modeled in the Nucor permit application.

> **Comment No. 129**
> The meteorological files supplied by Nucor contain roughly 20% calm wind hours. ~ *See* Exhibit 2. Calm wind hours are not calculated by AERMOD. The meteorological data might not be suitable.
>
> **LDEQ Response to Comment No. 129**
> AERMOD can calculate pollutant concentrations during the calm wind hours. AERMOD was specifically designed to support EPA's regulatory modeling programs. As such, it is recommended by EPA that the model be executed in regulatory default mode. For this application, AERMOD was implemented with the regulatory default mode activated, and the model calculated pollutant concentrations during calm wind (and missing meteorological data) hours. If a maximum concentration occurs at a receptor at an hour with calm winds, AERMOD reports it in the same manner as non-calm wind conditions, with the exception that a lower case "c" for "calm" is denoted after the concentration. ERM did not remove any calm calculated concentrations. If the maximum concentration occurred during calm winds, it was reported.[28]

LDEQ's response, however, is incorrect. AERMOD is a steady-state Gaussian dispersion model, and as such cannot calculate air concentrations when the wind is calm (e.g., 0.0 meter per

[27] LDEQ, Public Comments Response Summary, Consolidated Environmental Management, Inc. - Nucor Steel Louisiana, AI No. 157847, pp. 70-71.

[28] *Id.*, p. 106.

second). AERMOD sets calculated concentrations to zero during calm hours, thus LDEQ's understanding of how AERMOD treats calms is flawed. From the AERMOD User's Guide:

> The model treats missing meteorological data in the same way as the calms processing routine, i.e., it sets the concentration values to zero for that hour, and calculates the short term averages according to EPA's calms policy, as set forth in the Guideline.[29]

And from the Guideline on Air Quality Models:

> Hourly concentrations calculated with steady-state Gaussian plume models using calms should not be considered valid; the wind and concentration estimates for these hours should be disregarded and considered to be missing. Critical concentrations for 3-, 8-, and 24-hour averages should be calculated by dividing the sum of the hourly concentrations for the period by the number of valid or non-missing hours. If the total number of valid hours is less than 18 for 24-hour averages, less than 6 for 8-hour averages or less than 3 for 3-hour averages, the total concentration should be divided by 18 for the 24-hour average, 6 for the 8-hour average and 3 for the 3-hour average. For annual averages, the sum of all valid hourly concentrations is divided by the number of non-calm hours during the year. AERMOD has been coded to implement these instructions.[30]

LDEQ's misunderstanding of how AERMOD treats calms has serious permitting ramifications. LDEQ permitted the Nucor facility based on modeled impacts using 2001 through 2005 Baton Rouge Airport meteorological inputs that include many calm hours.

2. Replacing Standard ASOS Data with True Hourly-Average Winds Will Increase Modeled Impacts.

The AERMOD Implementation Workgroup, a group of Federal and State air dispersion modeling staff, have documented that using AERMOD with airport meteorological data will

[29] EPA, User's Guide for the AMS/EPA Regulatory Air Model - AERMOD, EPA-454/B-03-001, September 2004, pp 3-3 to 3-4.
[30] EPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005, Section 8.3.4.2.

likely underestimate modeled impacts. This is because of the high number of calm and missing hours in standard ASOS data, such as that used by Nucor in their permit application modeling.[31]

The AERMOD Implementation Workgroup has been developing a method to use one-minute average ASOS data collected at airports to calculate hourly-averaged winds that can then be used by AERMOD. These data can be used to replace standard ASOS data, such as were used in the Nucor permit application modeling. Standard ASOS data from airports are based on two-minute winds measured 10 minutes before the hour, and wind speeds less than three knots are reported as calm.

The hourly values calculated using one-minute average ASOS data would not be biased by the high number of missing low wind speed hours seen in Standard ASOS data. Furthermore, including low wind speed hours would be consistent with the data sets that were used to evaluate AERMOD in the first place. In other words, airport meteorological data that exclude low wind speeds are inconsistent with the data used to develop and evaluate AERMOD. From the AERMOD Implementation Workgroup:

- AERMOD was validated with low wind speeds similar to 1-min ASOS, lack of low wind speeds in std. ASOS may (will) result in under-prediction of impacts.[32]

In a presentation to the Workgroup, Mr. Joe Sims, of the Alabama Department of Environmental Management, commented:

- In almost all cases, the predicted concentrations using lighter winds were higher than when using standard ASOS – as expected.

- I was especially interested in point sources in a rural environment. This combination constitutes the vast majority of PSD applications we see in Alabama. The ratios in this category are pretty much in the 1 to 2 range. Applicants won't like this but it could be a lot worse.[33]

[31] AERMOD Implementation Workgroup, ASOS and Met Data Processing Subgroup, EPA R/S/L Modelers Workshop, May 12-14, 2009, pp. 3-4.
[32] Id., p. 4.
[33] *Id.*, p. 19.

Mr. Sims concluded his presentation as follows:

- Using the hourly averaged 1-minute ASOS data to better represent dispersion potential from a source makes a lot of sense.
- Including observed light winds and significantly reducing the number of hours with no usable winds logically produces more accurate results.
- The generally higher predicted concentrations would be more protective of human health.
- We as regulators must be prepared for challenges (and complaints) from the regulated community.[34]

In essence, the AERMOD Implementation Workgroup calculated hourly averaged wind data using one-minute average ASOS data, and then processed these data in the AERMOD meteorological data pre-processor, AERMET. They treated these meteorological data with the on-site pathway in AERMET processing.[35] This is the method used to develop AERMOD-ready input data using both on-site and site-specific data. These data invariably result in higher modeled concentrations than standard ASOS data, simply because they contain the low wind speeds that are most culpable for peak impacts. In other words, the Workgroup did not arbitrarily redefine all winds less than three knots as calm, as is done with standard ASOS data.

The AERMOD Implementation Workgroup's method to develop hourly wind values calculated using one-minute average ASOS data is not currently available to the public Their concern that AERMOD under estimates modeled impacts when run with standard ASOS is very important, however, and must be addressed in the Nucor permit application process. For example, this concern is heightened in the Nucor permit application, since the 24-hour PM_{10} modeled impacts using standard ASOS data are already very close to the allowable PSD increment.

[34] *Id.*, p. 20.
[35] *Id.*, p. 10.

3. Replacing Standard ASOS Data with LDEQ's Measured Hourly-Average Winds Will Increase Modeled Impacts.

EPA's AERMET program handles three types of meteorological data: Surface data from airports, upper air data from twice-daily radiosonde measurements, and site-specific meteorological parameters collected at the surface and at profiles above the surface.[36] Site-specific data are the preferred meteorological parameters for air dispersion model inputs.[37]

LDEQ measures wind speed wind direction, and ambient air temperature at a number of their air monitoring sites.[38] LDEQ's wind speed data reports values starting at one mile per hour; lower wind speed values are reported as calm. These data can be used in AERMOD, and have the advantage of including the low wind speed hours missing in the standard ASOS data used by Nucor in their permit application modeling.

LDEQ acknowledges that their monitoring data can be used in AERMOD, and specifies Baker as a surrogate surface station for modeling impacts in the Capitol region of their jurisdiction (the region where the proposed Nucor project is located). LDEQ specifies the Baton Rouge Airport as the primary surface station for this region, and Lake Charles is listed as the primary upper air station. Nucor, however, did not use any surface data from Baker or other LDEQ sites, instead relying solely on faulty standard ASOS data from the Baton Rouge Airport.

We analyzed the effects on modeled concentrations of using LDEQ surface meteorological data as the primary input to AERMOD, rather than the standard ASOS Baton Rouge Airport data. From LDEQ, we obtained wind speed, wind direction, and ambient temperature data for the following sites and years:

---

[36] EPA, User's Guide for the AERMOD Meteorological Preprocessor (AERMET), EPA-454/B-03-002, November 2004, p. 1-1.
[37] EPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005, Section 8.3.3.
[38] http://www.deq.louisiana.gov/portal/tabid/112/Default.aspx

Baker: 2005 through 2008
Baton Rouge Capitol: 2005 and 2008
Bayou Plaquemine: 2005
Dutchtown: 2005 through 2008
French Settlement: 2005 through 2008

We also obtained 2004 data for these sites; however, there were problems with reported wind speed values that make the data currently unusable for modeling.[39] Our analysis of these data focus on Baker as the primary data source, as it is closest to the Baton Rouge Airport. The other sites are closer to the proposed Nucor site than the Baton Rouge Airport, and thus also qualify as being more site-specific than the Baton Rouge Airport data.

For calculating stability parameters, cloud cover and ceiling height from the airport data are still required, as are upper air data from twice-daily radiosonde launches. For these purposes, we used the Baton Rouge Airport and Lake Charles FSL upper air data, respectively. In essence, we used the same airport and upper air data as did Nucor, but substituted 10-meter wind speed, wind direction, and ambient air temperature data from nearby LDEQ monitoring sites.

Petitioners processed the Baton Rouge surface meteorological data and Lake Charles upper air data with EPA's AERMET program (v. 06341). The data processing can be summarized as follows:

- We obtained 2004 through 2008 Baton Rouge Airport Integrated Surface Hourly Data (ISHD) files from the National Climatic Data Center (NCDC). These data are readily available on yearly ISHD DVDs or by downloading from NCDC's website. These surface data were processed through AERMET Stage 1, which performs data extraction and quality control checks.

- We obtained twice-daily upper air soundings from the Lake Charles Airport for January 1, 2004 through January 1, 2009. These soundings are in FSL format and data are readily available by downloading from the National Oceanic and Atmospheric Administration's FSL website. These upper air data were processed through AERMET Stage 1, which performs data extraction and quality control checks.

- We obtained hourly wind speed, wind direction, and ambient air temperature data from

[39] Personal communication with Steve Murrell, LDEQ, April 9, 2010.

LDEQ. These data were converted to the required AERMET units, and processed through AERMET Stage 1, which performs data extraction and quality control checks. The data were processed in the "onsite" pathway, which is the same method used by the AERMOD Implementation Workgroup in their analysis of hourly ASOS versus standard ASOS meteorological data.

- We merged the surface, LDEQ, and upper air data using AERMET stage two. Missing data were not filled.

- We processed the merged files in AERMET stage three. We used the LDEQ-recommended surface roughness, albedo, and Bowen ratio inputs as listed in their modeling procedures. These are the same surface roughness, albedo, and Bowen ratio inputs used in the Nucor modeling analysis. Except for one exception, we did not substitute Baton Rouge Airport wind data for missing LDEQ data.[40] AERMET Stage three creates the model-ready surface and profile data files required by AERMOD.

Our overall methodology appears to be the same approach for processing surface airport and upper air data as was used in developing the AERMOD input meteorology modeled in Nucor's permit application. We reach this conclusion by preparing a 2005 data set using only Baton Rouge Airport surface data and Lake Charles upper air data (no LDEQ wind data), and comparing the missing and calm hours with the 2005 data set used by Nucor. The results are equivalent.

We remodeled Nucor's permit application PM_{10} emissions using AERMOD, v. 09292. This is the latest version of the model. For this analysis, we used Nucor's PM_{10} model input files, without changes, except for the revised meteorological data based on LDEQ's wind and temperature measurements.[41]

Nucor's permit application modeling found a highest-second high 24-hour PM_{10} impact of 28.06 $\mu g/m^3$, which is slightly lower than the allowable PSD increment of 30 $\mu g/m^3$ (LDEQ, Air Permit Briefing Sheet, Consolidated Environmental Management, Inc. - Nucor Steel

[40] We substituted Baton Rouge Airport data for missing Baker 2007 data, as there were greater than 10% missing hours in the data set. These missing hours were primarily from the temperature sensor, a relatively insensitive parameter to modeled AERMOD impacts.
[41] *See* Exhibit E on attached disk, which provides Commenters' data to verify their modeling results.

Louisiana, AI No. 157847, p. 8). As discussed above, Nucor's modeling used Baton Rouge Airport surface winds, which do not contain the low wind speeds necessary for verifying compliance with the PSD increments or the NAAQS.

We remodeled Nucor's permit application PM_{10} emissions using LDEQ's Baker, Dutchtown, French Settlement, Baton Rouge Capitol, and Bayou Plaquemine site wind speed, wind direction, and ambient temperature data. Our modeled impacts are shown in the following tables:

Highest 2nd High 24-hr PM_{10} Concentrations ($\mu g/m^3$) Using LDEQ Baker Site Wind and Temperature Data

Year of Meteorological Data	Highest 2nd High 24-hr PM_{10} Concentration ($\mu g/m^3$)	Easting Coordinate (meters)	Northing Coordinate (meters)
2005	48.81	708609.60	3329290.20
2006	64.14	707981.00	3328650.40
2007	52.64	705350.40	3329678.60
2008	60.82	708050.80	3328721.50

Highest 2nd High 24-hr PM_{10} Concentrations ($\mu g/m^3$) Using LDEQ Dutchtown Site Wind and Temperature Data

Year of Meteorological Data	Highest 2nd High 24-hr PM_{10} Concentration ($\mu g/m^3$)	Easting Coordinate (meters)	Northing Coordinate (meters)
2005	59.46	708609.60	3329290.20
2006	56.45	705288.90	3329290.10
2007	61.78	705335.00	3329581.40
2008	52.49	706239.60	3328108.20

Highest 2nd High 24-hr PM_{10} Concentrations ($\mu g/m^3$) Using LDEQ French Settlement Site Wind and Temperature Data

Year of Meteorological Data	Highest 2nd High 24-hr PM_{10} Concentration ($\mu g/m^3$)	Easting Coordinate (meters)	Northing Coordinate (meters)
2005	69.99	707492.00	3328152.80
2006	73.76	707561.90	3328223.90
2007	73.96	707561.90	3328223.90
2008	65.42	707771.40	3328437.10

Highest 2nd High 24-hr PM_{10} Concentrations ($\mu g/m^3$) Using LDEQ Baton Rouge Capitol Site Wind and Temperature Data

Year of Meteorological Data	Highest 2nd High 24-hr PM_{10} Concentration ($\mu g/m^3$)	Easting Coordinate (meters)	Northing Coordinate (meters)
2005	52.25	705365.80	3329775.70
2008	61.18	705482.50	3330454.60

Highest 2nd High 24-hr PM_{10} Concentration ($\mu g/m^3$) Using LDEQ Bayou Plaquemine Site Wind and Temperature Data

Year of Meteorological Data	Highest 2nd High 24-hr PM_{10} Concentration ($\mu g/m^3$)	Easting Coordinate (meters)	Northing Coordinate (meters)
2005	81.59	708050.80	3328721.50

In addition, we compared modeled impacts of Nucor's PM_{10} emissions using all of the above LDEQ 2005 data sets and Nucor's analysis using 2005 Baton Rouge Airport data:

Comparison of Highest 2nd High 24-hr PM_{10} Concentrations (µg/m^3) Using 2005 Meteorological Data Sets

Year of Meteorological Data	Highest 2nd High 24-hr PM_{10} Concentration (µg/m^3)	Source of Surface Wind Speed, Wind Direction, and Ambient Air Temperature Data
2005	27.55	Baton Rouge Airport
2005	52.25	LDEQ Baton Rouge Capitol Site
2005	48.81	LDEQ Baker Site
2005	59.46	LDEQ Dutchtown Site
2005	69.99	LDEQ French Settlement Site
2005	81.59	LDEQ Bayou Plaquemine Site

This table shows that for year 2005, modeling Nucor's emissions with LDEQ surface winds will result in modeled impacts from about 1.77 to 2.96 times higher than impacts modeled with Baton Rouge Airport wind data.

Without exception, our AERMOD analyses using LDEQ surface meteorological data show that Nucor's proposed project will substantially violate the 24-hour PM_{10} PSD increment of 30 µg/m^3. All LDEQ meteorological data sets result in the same conclusion. This is in direct contrast to Nucor's analyses using Baton Rouge Airport data that do not identify any violations of the increments or standards.

Moreover, our findings are consistent with the AERMOD Implementation Workgroup's conclusion that using airport data will likely under-predict modeled impacts. AERMOD was evaluated and developed using light wind speeds, such as those included in LDEQ's monitoring data. Therefore, the LDEQ wind and temperature data are better-suited for verifying compliance

with the applicable increments and standards than are Baton Rouge Airport data that completely lack these low wind speed hours.

LDEQ's permit approval based on Nucor's analysis is unacceptable because it used meteorological data that are unsuitable for verifying compliance with the NAAQS and PSD increments.

LDEQ's RTC cited 40 CFR 51 Appendix W Section 8.3.4.l.a, which does not apply to AERMOD's handling of calm hours. *See* LDEQ RTC 260.C. How AERMOD handles calms is included in the very next paragraph of Appendix W (Section 8.3.4.l.b), which states:

> AERMOD, while fundamentally a steady-state Gaussian plume model, contains algorithms for dealing with low wind speed (near calm) conditions. As a result, AERMOD can produce model estimates for conditions when the wind speed may be less than 1 m/ s, but still greater than the instrument threshold. Required input to AERMET, the meteorological processor for AERMOD, includes a threshold wind speed and a reference wind speed. The threshold wind speed is typically the threshold of the instrument used to collect the wind speed data. The reference wind speed is selected by the model as the lowest level of non-missing wind speed and direction data where the speed is greater than the wind speed threshold, and the height of the measurement is between seven times the local surface roughness and 100 meters. If the only valid observation of the reference wind speed between these heights is less than the threshold, the hour is considered calm, and no concentration is calculated. None of the observed wind speeds in a measured wind profile that are less than the threshold speed are used in construction of the modeled wind speed profile in AERMOD.

LDEQ's RTC relied on the incorrect section of Appendix W for support. *See* LDEQ RTC 260.C.

LDEQ's RTC is also against the weight of evidence. The AERMOD Implementation Workgroup and our modeling analyses both show that AERMOD, run with airport met data, will underpredict air impacts. LDEQ seems more concerned with their existing protocol than with protecting the public from adverse air quality impacts. If LDEQ is concerned with consistency,

then all facilities in LDEQ's jurisdiction should be modeled with wind speed data from sources other than airports.

C. LDEQ Improperly Exempted Nucor from PSD Monitoring Requirements.

Pre-application continuous air quality monitoring requirements for Prevention of Significant Deterioration are found in the Clean Air Act, 42 U.S.C. § 7475(e)(2), Preconstruction requirements:

> **(2)** Effective one year after August 7, 1977, the analysis required by this subsection shall include continuous air quality monitoring data gathered for purposes of determining whether emissions from such facility will exceed the maximum allowable increases or the maximum allowable concentration permitted under this part. Such data shall be gathered over a period of one calendar year preceding the date of application for a permit under this part unless the State, in accordance with regulations promulgated by the Administrator, determines that a complete and adequate analysis for such purposes may be accomplished in a shorter period. **The results of such analysis shall be available at the time of the public hearing on the application for such permit (**emphasis added**)**.

The Clean Air Act clearly requires that the applicant must gather pre-construction air monitoring data in the one year period prior to the date of application for a permit. Once this condition is required, the only consideration to this requirement occurs if LDEQ, in accordance with its regulations, determines that a complete and adequate analysis for such purposes may be accomplished in a shorter period. Nucor meets neither of these conditions, as they failed to gather any pre-construction air monitoring data prior to their permit application.

Furthermore, the Clean Air Act requires that such pre-application monitoring data "shall be available at the time of the public hearing on the application for such permit." These data were not available at the April 15, 2010 public hearing for the Nucor project, resulting in the public having no such information to determine whether Nucor will comply with the applicable NAAQS and PSD increments. This is a violation of the Clean Air Act.

Louisiana's PSD Regulations require pre-construction air monitoring if modeled impacts exceed the levels specified in Louisiana Administrative Code, Title 33, Part III, § 509 I.5:

> 5. The administrative authority may exempt a stationary source or modification from the requirements of Subsection M of this Section, with respect to monitoring for a particular pollutant, if:
>
> a. the emissions increase of the pollutant from a new stationary source or the net emissions increase of the pollutant from a modification would cause, in any area, air quality impacts less than the following amounts:

Carbon monoxide	575 µg/m^3	8-hour average
Nitrogen dioxide	14 µg/m^3	annual average
Particulate matter	10 µg/m^3 of PM_{10}	24-hour average
Sulfur dioxide	13 µg/m^3	24-hour average
Ozone	No *de minimis* air quality level is provided for ozone. However, any net increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would require the performance of an ambient impact analysis including the gathering of ambient air quality data.	
Lead	0.1 µg/m^3	3-month average
Fluorides	0.25 µg/m^3	24-hour average
Total reduced sulfur	10 µg/m^3	1-hour average
Hydrogen sulfide	0.2 µg/m^3	1-hour average
Reduced sulfur compounds	10 µg/m^3	1-hour average

b. the concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in Subparagraph I.5.a of this Section; or

c. the pollutant is not listed in Subparagraph I.5.a of this Section.

Nucor's air dispersion modeling shows that their proposed PM_{10} and SO_2 emissions will easily exceed the PSD monitoring significance levels set forth in LAC Title 33, Part III, § 509 I.

From Nucor's PSD permit application:

> One year of preconstruction ambient air quality monitoring may be required as part of PSD review. The maximum impact due to the plant in comparison with the monitoring deminimis concentrations is presented in Table 6-39. Although the monitoring deminimis concentration is exceeded for PM_{10} and SO_2, LDEQ's monitoring network is sufficient to establish the background air quality concentrations with (sic) the study area.[42]

Table 6-39 of the permit application shows that Nucor's air emissions alone will cause peak offsite 24-hour PM_{10} and SO_2 concentrations of 35.7 µg/m^3 and 34.0 µg/m^3, respectively. In

[42] Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, 1 of 4, June 2009, p. 6-25.

addition, the existing background PM_{10} and SO_2 air concentrations in the area that the source or modification would affect exceed the exemption levels specified in LAC Title 33, Part III, § 509 I.[43] Thus all applicable PSD monitoring concentration exemption levels are exceeded and Nucor must collect PM_{10} and SO_2 air measurements as required by LAC Title 33, Part III, § 509 M.

La. Admin. Code tit. 33, pt. III, § 509 M.1 allows Nucor to collect pre-construction monitoring data for a period shorter than one year, but never less than four months:

> d. In general, the continuous air quality monitoring data that is required shall have been gathered over a period of at least one year and shall represent at least the year preceding receipt of the application, except that, if the administrative authority determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that is required shall have been gathered over at least that shorter period.

There is no language in § 509 that allows Nucor to sidestep this pre-application monitoring requirement. Disregarding the stated monitoring requirements, Nucor submits 2001-2005 LDEQ PM_{10} and SO_2 data from East Baton Rouge Parish with their permit application, instead of the obligatory pre-construction monitoring data.[44]

Nucor argues that LDEQ's monitoring network is sufficient to establish the background air quality concentrations within the study area. Nucor's argument, however, fails to understand how background concentrations relate to the pre-and post-construction monitoring requirements of La. Admin. Code tit. 33, pt. III, §§ 509 I and M. In essence, LDEQ's existing air quality monitoring data do not exempt Nucor from their requirement to collect pre-construction and post-construction air quality data. Once the PSD significant monitoring concentrations are exceeded, then Nucor has to comply with the PSD monitoring requirements of § 509 M. Since Nucor has failed to do any such monitoring, their PSD permit application is incomplete and LDEQ's approval of it was improper.

[43] *Id.*, Table 6-6.
[44] *Id.*, p. 6-8.

The permit included with LDEQ's April 15, 2010 hearing notice remains silent on the PSD monitoring requirements for PM_{10} and SO_2. LDEQ discusses this issue only with respect to CO and lead:

> AERMOD modeling of CO and lead emissions from the proposed project indicates that the maximum offsite ground level concentrations of these pollutants will be below their respective PSD significance levels and preconstruction monitoring level. Therefore, pre-construction monitoring and refined NAAQS modeling for CO and lead were not required.[45]

LDEQ clearly states that since CO and lead did not trigger the pre-construction monitoring level, no monitoring was required for these pollutants. The permit, however, fails to address the pollutants that did exceed the pre-construction monitoring level. Since LDEQ fails to speak to the pre-construction monitoring requirements for PM_{10} and SO_2 in the permit, LDEQ's permit for Nucor is incomplete.

LDEQ obliquely addresses the PSD monitoring issue in their earlier response to comments for the proposed Nucor project. From LDEQ's Response to Comments:

> **Comment No. 124**
> LDEQ has not made a determination that the existing air quality data used by Nucor in its air quality modeling are representative of the air quality at the proposed site. Even if LDEQ had made such a determination, it would have been arbitrary and improper. The existing data used by Nucor was gathered between 2001 and 2005 in Baton Rouge, LA, approximately 40 miles from the proposed site. This data is not representative of the proposed site. LDEQ must require continuous air quality monitoring at the proposed site.
>
> **LDEQ Response to Comment No. 124**
> The measured data in Baton Rouge was used to represent background concentrations. This is conservative (higher concentrations) in that the monitors are located in a more populated area (urban area) and the measured background concentrations also record impacts from major emission sources that were modeled. Based on the available monitoring network, the facility used the closest and most appropriate LDEQ monitors to determine the background. 40 CFR 51, Appendix W, Section 8.2.2.c specifies, "If there are no monitors located in the vicinity of the source, a 'regional site' may be used to determine background. A 'regional site' is one that is located away from the area of interest but is impacted by similar natural and distant manmade sources." LDEQ

[45] LDEQ, Statement Of Basis, Consolidated Environmental Management, Inc. - Nucor Steel Louisiana, AI No. 157847, PSD-LA-740, p. 23.

> determined that the Baton Rouge area monitors would be a conservative option for a regional site.[46]

LDEQ's RTC, however, also fails to understand how background concentrations relate to the pre-and post-construction monitoring requirements of LAC Title 33, Part III, § 509 M. The premise is simple: Air concentrations collected as required by LAC Title 33, Part III, § 509 can be used as background values for air modeling; Monitored data from existing LDEQ stations cannot be used to exempt a source from LAC Title 33, Part III, § 509 M PSD monitoring requirements.

In its response to comments, LDEQ cites 40 CFR 51, Appendix W Section 8.2.2.c.[47] Appendix W Section 8.2.2 addresses background concentrations for isolated single sources, which clearly do not apply to Nucor. Furthermore, 40 CFR 51 Appendix W Section 8.2.2 in no way exempts Nucor from their monitoring requirements of LAC Title 33, Part III, § 509 M. In fact, 40 CFR 51 Appendix W, Section 8.2.1.b states:

> Typically, air quality data should be used to establish background concentrations in the vicinity of the source(s) under consideration.

However, the only reason there are no air quality data in the vicinity of the source under consideration (Nucor) is because LDEQ has failed to require the PSD air monitoring which Nucor's air impacts have clearly triggered. Thus, LDEQ is creating the very conditions they use to argue against requiring Nucor to perform the required LAC Title 33, Part III, § 509 M air monitoring.

[46] LDEQ, Public Comments Response Summary, Consolidated Environmental Management, Inc. - Nucor Steel Louisiana, AI No. 157847, pp. 104-105.
[47] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005.

Appendix W Section 8.2 provides guidance on adding background concentrations to modeled impacts – nothing more. LDEQ cannot interpret Appendix W as exempting Nucor from their LAC Title 33, Part III, § 509 M monitoring requirements.

LDEQ permitted the Nucor facility without requiring Nucor to perform both pre-construction and post-construction air monitoring for both PM_{10} and SO_2, as specified in LAC Title 33, Part III, § 509 sections M.1 and M.2, respectively. Post-construction monitoring for these pollutants is essential, as LDEQ has already permitted numerous sources that are violating both the NAAQS and PSD increments. For example, Nucor's own modeling identified existing NAAQS violations around the Burnside Terminal, CF Industries, Mosaic-Faustina, Mosaic-Uncle Sam, PotashCorp, and the Motiva Refinery.[48] That LDEQ permitted these non-compliant sources and has no air monitors in place to verify conformity with the very standards they are charged with regulating is troublesome. It is unacceptable to exacerbate this situation by permitting Nucor with the same lax (and illegal) monitoring exemptions.

LDEQ's RTC that pre-construction ambient air quality monitoring can be required if representative ambient air quality data are not available misstates the law. *See* LDEQ RTC 260.D (quoting LDEQ RTC 122). LAC:33:III:509.M(1)(d) is clear that data must be gathered within the year preceding the permit application. The data made available to LDEQ by Nucor spanned the years 2001 to 2005. The permit application was submitted to LDEQ no earlier than 2008. This clearly falls short of the requirement for ambient air quality monitoring. LDEQ does not have authority to waive the requirement that the data be gathered in the year immediately preceding the application or to exempt Nucor from providing such data when Nucor does not

[48] Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, June 2009.

qualify for any exemptions. LDEQ did not have authority to grant Nucor's permit based on the information it had.

D. Nucor's Finding that Class I Area PM10 Impacts are Insignificant Neglects Contributions from Secondary Particulate Formation.

Nucor's project-specific Class I area PM_{10} modeling found impacts that are below the proposed significance levels.[49] Nucor's modeling, however, fails to address the formation of sulfates and nitrates that it must also consider as PM_{10}. Nucor was required to consider nitrates and sulfates in its Class I $PM_{2.5}$ analyses due to their classification as fine particulates.[50]

Nucor modeled sulfates and nitrates as part of its Class I modeling analyses, yet it failed to include these constituents of particulate matter in the project's PM_{10} and $PM_{2.5}$ impacts.[51] Including these particulate matter precursors is particularly important because Nucor's emissions of PM_{10} are much smaller than its emissions of NO_x (nitrate precursors) and SO_2 (sulfate precursor):

- PM_{10} emissions: 696.60 tons/year
- SO_2 emissions: 3,781.87 tons/year
- NO_x emissions: 3,791.83 tons/year[52]

Nucor has thus failed to include what are likely the greatest contributors to its project's PM_{10} and $PM_{2.5}$ Class I area impacts. Nucor must reanalyze these project impacts, including the effects of sulfate and nitrate on PM_{10} and $PM_{2.5}$ levels at Breton NWR.

[49] Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, 1 of 4, June 2009, Table 6-11.
[50] VISTAS, Draft Guidance for Demonstrating Attainment of Air Quality Goals for $PM_{2.5}$ and Regional Haze, January 2, 2001, pp. 14-15, attached as Supp. Exh. B. *See also* http://www.vistas-sesarm.org/documents/index.asp.
[51] Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, 1 of 4, June 2009, p. 6-15.
[52] LDEQ, Air Permit Briefing Sheet, Consolidated Environmental Management, Inc. - Nucor Steel Louisiana, AI No. 157847, PSD-LA-740, p. 3.

Nucor's SOx and NOx emissions far outweigh their PM emissions, and must be assessed as PM precursors. We did not say that CALPUFF is necessarily the best model to be used for assessing PM2.5 impacts at Breton NWR – we only pointed out that sulfate and nitrate impacts were occurring from Nucor's emissions and that they were being ignored for all NAAQS and PSD increment compliance verification analyses. Nucor ran CAMx for their ozone analysis and they could have used the same model to calculate PM2.5 and PM10 impacts at Breton NWR (which would include sulfate and nitrate impacts).

E. Emissions Calculations That Nucor Submitted to LDEQ to Support Nucor's PSD Analysis are Unverifiable.

Nucor's permit application included emission calculations and emission reporting tables in Adobe Acrobat .PDF file format. In this encrypted form, it is impossible to verify the numerous calculations needed for the complete Nucor facility emission inventory. The usual mode for providing these calculations to the reviewing public is to make available unlocked Excel spreadsheets showing the equations and assumptions applied by Nucor when preparing the application.

LDEQ, however, does not have any electronic form of the emission calculations, except the PDF files included in Nucor's Prevention of Significant Determination Permit Application. This is a problem for four reasons:

1. The public cannot review the actual emission calculations applied in the permit application. One would hope that the equations shown on the .PDF listings are the same as those actually used in the final calculations, but there is no way to know for sure without checking the equations by hand (many thousands of times), or, more reasonably, by viewing the calculations in the program Nucor used to perform the inventory (i.e., Excel spreadsheets). The emission calculation spreadsheets include 329 pages of calculations, with potentially hundreds of individual calculations per page.

2. By not having the native spreadsheets, LDEQ could not itself have reviewed the facility emission calculations in any meaningful fashion. At best, they could only spot-check. And since the highest second-high 24-hour PM_{10} modeled air concentration is over 93%

of the allowable PSD increment (without any necessary corrections to the modeling methods discussed in our other comments), any emission calculation errors could adversely impact permit issuance. This concern also applies to the Class I modeling impacts such as visibility impairments.

3. Nucor's consultant, ERM, obviously created the calculation spreadsheets, and Nucor could have provided them to LDEQ and any reviewers requesting the files. Appendix C of Nucor's application contains the reported facility emission calculations. At the bottom of each page there is a footer with the name of the spreadsheet and worksheets used by Nucor. For example, the project emissions are calculated in a 329 page spreadsheet named "2009\0062737\3117BRappC.xls.[53]" The .XLS extension clearly reveals that ERM performed the calculations with Microsoft Excel. Nucor, however, has never made these Excel files available. Instead, they encrypt the data in Adobe .PDF form, where it is impossible to scrutinize what equations it used for the permit application.

4. The printout of the emission calculation spreadsheets provided by LDEQ are frequently difficult to read. They are low-quality hardcopy scans of printed pages, and often require tedious magnification to make out numbers. Even under magnification, it is sometimes impossible to determine essential numbers.

Meaningful public review requires full transparency by the applicant of its modeling work. Regulators must therefore not accept analyses unless the applicant provides a transparent view of the actual applied dispersion modeling equations. EPA has explained "the source code needs to be open for public access and scrutiny to enable meaningful opportunity for public comment on new source permits, PSD increment consumption and SIPs." EPA Guideline on Air Quality Models para. 3.1.1(c)(vi)\.

Without the actual electronic spreadsheets used to perform the Nucor emission calculations, "meaningful opportunity for public comment on new source permits, PSD increment consumption and SIPs" is not possible.

In response to Petitioners' comment, LDEQ, in essence, responded that the equations for emission calculations do not need to be made publicly available.

[53] Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, 2 of 4, June 2009. Although difficult to read clearly, this appears to be the excel spreadsheet file name.

LDEQ is not limited by comment deadlines such as those experienced by the public. The public must have the available electronic emission calculations to have any chance of realistically reviewing the calculations in the allotted timeframe. Petitioners' spent an inordinate amount of time trying to read and recreate the hardcopy scans of emission calculations. This is a roadblock to the public having the ability to understand and comment on the Nucor permit. LDEQ responded that it is not impossible for the reviewers to figure out the emission calculations. But, "not impossible" is a poor excuse for not providing the electronic emission calculations that Nucor could easily have emailed LDEQ and the reviewing public.

A recent LDEQ document proves Petitioners' concern (*see* LDEQ_Resp._Zen-Noh_Doc.Request.pdf, p. 14/24, in which Tim Desselles, ERM, writes to Kermit Wittenburg, LDEQ).

> As we discussed regarding the May 3 comments from Zen-Noh, comment XIV, the attached calcs and EIQs update the PIG-101 and PIG-102 emission points. PIG-101 now has TSP and PM10 speciated separately (previously assumed equal), and both calcs now state the source of the emission factors (AP-42 in both cases). Also, I located an error in PIG-102 where the annual average emission rate was calculated from the max hourly rate instead of the average hourly rate The annual number is usually calculated as average hourly 8760 x 2000, but the formula was drawing from the incorrect cell. Fortunately, the result is that emissions decrease, if only slightly (by the 10% factor for max operations). Please call if you have any questions.

The key is that the error is based on "the formula was drawing from the incorrect cell." The cell in question is a location in Excel where the formula resides. It is impossible to find that error without having the actual Excel spreadsheet used by ERM.

F. <u>LDEQ Could Not Provide Modeling Input Files Necessary for Evaluating Nucor's Class I Area Impact Modeling.</u>

Nucor prepared numerous modeling analyses for air and air quality-related impacts to Breton NWR, A Class I impact area about 170 km east of the proposed facility. Petitioners requested Nucor's Class I impact modeling files, including the meteorological data and ozone

data required to evaluate its modeling analyses. LDEQ only provided Petitioners with the CALPUFF and CALPOST control input files, but could not provide a number of the requested files.

Specifically, Petitioners requested from LDEQ, but never received, the CALMET monthly VISTAS Domain 1 meteorological data files and the yearly VISTAS Domain 1 ozone data files used by Nucor (listed below). Nucor's application materials show that Nucor used these files because Nucor lists them in the in the main CALPUFF input files. LDEQ provided Petitioners with the main CALPUFF input files, but Petitioners cannot evaluate the model results without the CALMET meteorological and ozone data files listed below.

MET2001-DOM1-JAN.DAT
MET2001-DOM1-FEB.DAT
MET2001-DOM1-MAR.DAT
MET2001-DOM1-APR.DAT
MET2001-DOM1-MAY.DAT
MET2001-DOM1-JUN.DAT
MET2001-DOM1-JUL.DAT
MET2001-DOM1-AUG.DAT
MET2001-DOM1-SEP.DAT
MET2001-DOM1-OCT.DAT
MET2001-DOM1-NOV.DAT
MET2001-DOM1-DEC.DAT

MET2002-DOM1-JAN.DAT
MET2002-DOM1-FEB.DAT
MET2002-DOM1-MAR.DAT
MET2002-DOM1-APR.DAT
MET2002-DOM1-MAY.DAT
MET2002-DOM1-JUN.DAT
MET2002-DOM1-JUL.DAT
MET2002-DOM1-AUG.DAT
MET2002-DOM1-SEP.DAT
MET2002-DOM1-OCT.DAT
MET2002-DOM1-NOV.DAT
MET2002-DOM1-DEC.DAT

MET2003-DOM1-JAN.DAT
MET2003-DOM1-FEB.DAT

MET2003-DOM1-MAR.DAT
MET2003-DOM1-APR.DAT
MET2003-DOM1-MAY.DAT
MET2003-DOM1-JUN.DAT
MET2003-DOM1-JUL.DAT
MET2003-DOM1-AUG.DAT
MET2003-DOM1-SEP.DAT
MET2003-DOM1-OCT.DAT
MET2003-DOM1-NOV.DAT
MET2003-DOM1-DEC.DAT

OZONE01.DAT
OZONE02.DAT
OZONE03.DAT

LDEQ's response to Petitioners' data file request came after the initial comment period closed. Petitioners sent a 500 GB hard drive to LDEQ, and on Monday April 19, 2010 Petitioners received the drive back from LDEQ—but it did not contain the above-listed files. Instead, LDEQ sent meteorological data files that were not part of Nucor's modeling analysis (they sent us the wrong files). LDEQ did not send any of the ozone data used by Nucor in its permit modeling analysis.

The drive that LDEQ sent back to Petitioners included CALMET files for the 6-km CENRAP South grid. LDEQ apparently used these data files in their BART modeling analyses, but they are not what Petitioners requested, nor what they need to replicate and evaluate Nucor's Class I impact CALPUFF modeling. Nucor used 4-km VISTAS Domain 1 CALMET data for their Class I impact analyses.

The last three files in the above list are ozone data extracted for VISTAS Subdomain 1, that Nucor used in its Class I impact modeling. Petitioners can never be sure of the data that Nucor used in its analysis, because LDEQ never produced these files. Petitioners have the standard ozone data set for the entire VISTAS region, which allows Petitioners to extract ozone data for VISTAS Subdomain 1 using the program SUBDOMN and run from the CALPUFF

graphical user interface. But without the actual file that Nucor used, Petitioners cannot know how Nucor prepared the yearly ozone data files.

During the week of April 19, 2010 Petitioners sent a 500 GB hard drive to the National Park Service, and they sent us the appropriate VISTAS Domain 1 meteorological data files. However, the National Park Service does not have the three yearly ozone files used by Nucor. Because of the protracted effort to obtain the data Nucor used in its permit modeling, Petitioners have not yet finished their Class I modeling review.

LDEQ should have had the files that Petitioners were unable to obtain from LDEQ—but apparently, Nucor failed to provide them to LDEQ. Without these files, LDEQ could not have replicated or independently evaluated the Class I modeling performed by Nucor.

LDEQ's RTC reflected that they were aware that they did not have the proper data, so they simply provided the data on hand. The ozone files LDEQ provided, like the CALMET data, are for the wrong analysis – they are not the ozone files used by Nucor.

Petitioners requested the data from LDEQ because we need the exact data sets modeled by Nucor in order to replicate their analysis. When LDEQ clearly did not have the right data, we contacted the NPS in a last-ditch effort to obtain the data. We were also concerned that the NPS data may be for different time blocks than modeled by the applicant, which may or may not affect our model replication efforts.

A recent LDEQ document shows that the FWS also had difficulties reviewing Nucor's Class I modeling (see LDEQ_Resp._Zen-Noh_Doc.Request.pdf, p. 23-24/24, in which Jill Webster, FWS, writes to Bryan Johnston).

> Lastly, we would like to comment on the difficult nature of this Class I review. Class I analyses are best reviewed in whole, as a complete package. We were provided several incomplete modeling iterations and relevant emissions information came to us in parts. Not having a complete package including the most recent emissions estimates, narrative

describing the process, narrative clearly explaining the bypass scenarios, narrative describing modeling assumptions, and straightforward modeling result summaries, made our review far more difficult and much more time consuming than necessary.

III. THE TITLE V PERMIT FAILS TO INCORPORATE CONDITIONS SUFFICIENT TO ENSURE COMPLIANCE WITH PSD REQUIREMENTS. [54]

The Clean Air Act Title V operating permit program charges state permitting authorities with issuing each major stationary source a comprehensive operating permit that will "identify all emission limits for the source," including "enforceable emissions limitations and standards" and "requirements to assure compliance with the permit terms and conditions." *Sierra Club v. Environmental Protection Agency*, 536 F.3d 673, 674 (D.C. Cir. 2008), 42 U.S.C. § 7661c (a) and (c). Both the Title V statutory provisions and the implementing regulations require operating permits to contain sufficient conditions to ensure compliance, including compliance with PSD significance thresholds.

A. Legal Background.

A BACT determination consists of three parts—the emission limit, the control technology that the emission limit is based on, and the compliance provisions. The heart of the PSD permitting process is establishing enforceable limits to ensure that BACT determinations are implemented. Without enforceable limits, the permit is a hollow promise. BACT emission limits must be met on a continual basis at all levels of operation and must be federally enforceable, which requires practical enforceability.[55] EPA explained:

> BACT emission limits or conditions must be met on a continual basis at all levels of operation (*e.g.*, limits written in pounds/MMbtu or percent reduction achieved), demonstrate protection of short term ambient standards (limits written in pounds/hour)

[54] In the time allowed, Petitioners updated many (but not all) of the arguments in this section to address LDEQ's RTC and final permit.

[55] *See U.S. v. Louisiana-Pacific Corp*., 682 F. Supp. 1122, Civil Action No. 86-A-1880 (D. Colorado, March 22, 1988); 40 C.F.R. § 52.21(b)(17); NSR Manual, p. B.56.

and be enforceable as a practical matter (contain appropriate averaging times, compliance verification procedures and recordkeeping requirements).[56]

Practical enforceability means the source must be able to show continuous compliance with each limitation or requirement.[57] Adequate testing, monitoring, and record-keeping must be included in the permit.[58] The EPA's NSR Manual notes:

> To complete the BACT process, the reviewing agency must establish an enforceable emission limit for each subject emission unit at the source and for each pollutant subject to review that is emitted from the source . . .
>
> The emissions limits must be included in the proposed permit submitted for public comment, as well as the final permit. BACT emission limits or conditions must be met on a continual basis at all levels of operation (e.g., limits written in pounds/MMbtu or percent reduction achieved), demonstrate protection of short term ambient standards (limits written in pound/hour) and be enforceable as a practical matter (contain appropriate averaging times, compliance verification procedures and recordkeeping requirements). Consequently, the permit must:
>
> - be able to show compliance or noncompliance (i.e., through monitoring times of operation, fuel input, or other indices of operating conditions and practices); and
>
> - specify a reasonable compliance averaging time consistent with established reference methods, contain reference methods for determining compliance, and provide for adequate reporting and recordkeeping so that the permitting agency can determine the compliance status of the source.[59]

The NSR Manual also explains that emission and operational limits "must be clearly expressed, easily measurable, and allow no subjectivity…. Such limits should be of a short term nature, continuous and enforceable."[60] The NSR Manual further clarifies the meaning of "enforceability." It provides:

> Compliance with any limitation must be able to be established at any given time. When drafting permit limitations, the writer must always ensure that restrictions are written in such a manner that an inspector could verify instantly whether the source is or was

[56] NSR Manual, p. B. 56.
[57] See, e.g., "Guidance on Limiting Potential to Emit in new Source Permitting," from Terrell F. Hunt, Associate Enforcement Counsel, OECA, and John Seitz, Director, OAQPS, to EPA Regional Offices (June 13, 1989)
[58] NSR Manual, pp. A.5-A.6.
[59] NSR Manual, p. B.56.
[60] NSR Manual, p. H.5.

> complying with the permit conditions. Therefore, short-term averaging times on limitations are essential.
>
> Emission limits should reflect operation of the control equipment, be short-term, and, where feasible, the permit should require a continuous emissions monitor. Blanket emissions limits alone (e.g., tons/yr, lb/hr) are virtually impossible to verify or enforce, and are therefore not enforceable as a practical matter.
>
> When permits contain production or operational limits, they must also have requirements that allow a permitting agency to verify a source's compliance with its limits. These additional conditions dictate enforceability and usually take the form of recordkeeping requirements.[61]

Both Nucor[62] and the LDEQ selected the top-down BACT process as set out in the NSR Manual to determine BACT.[63] No other process is identified or advocated by any party. Thus, LDEQ should consistently follow the top-down process as laid out in the NSR Manual.[64] This process includes not only establishing BACT emission limitations using the top down process, but making sure these limitations are enforced. The LDEQ does not get to cherry pick the guidance, once in always in. Section V of the chapter on BACT, followed by LDEQ, is captioned "Enforceability of BACT." It explains: "To complete the BACT process, the reviewing agency must establish an enforceable emission limit for each subject emission unit at the source and for each pollutant subject to review that is emitted from the source."[65] The

[61] NSR Manual, App. C, pp. c.3 - c.5.

[62] ERM, Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, June 2009, EDMS 42946044 ("6/09 Application"), Sec. 3.0.

[63] RTC 65 ("LDEQ conducted a top-down BACT analysis in accordance with the suggested methodology outlined in EPA's draft 1990 New Source Review Workshop Manual."). See same language also at 96, 99, 101, 104, 114, 115, 118, 119.

[64] *Alaska v. US EPA*, 298 F.3d 814 (9th Cir. 2002) ("Although the top-down approach is not mandated by the Act, if a state purports to follow this method, it should do so in a reasoned and justified manner.")

[65] NSR Manual, p. B.56.

Environmental Appeals Board has used this guidance as a touchstone for agency thinking on PSD issues,[66] including provisions that involve enforceability of the resulting limits.[67]

B. The Monitoring Frequency for Numerous Emission Units is Not Adequate to Ensure Enforceability.

The Clean Air Act and Louisiana law require permits to contain terms and conditions that assure compliance with the applicable limits.[68] The PSD permit and Title V permit do not meet this requirement.

The PSD permit contains no testing, monitoring, or record-keeping provisions. Therefore, it is fundamentally flawed. Monitoring and record-keeping are only found in the draft Title V specific requirements. None of the Title V monitoring is specifically directed at BACT limitations, but rather generic "emission rates," without ever identifying which emission rates are to be tested. As most BACT determinations are expressed as concentrations (e.g., lb/ton, lb/MMBtu, ppm, percent), not "emission rates" (lb/hr, ton/yr), the draft permits in effect, contain no monitoring and recordkeeping for BACT limitations. Specific examples, which are discussed below, include control efficiencies for scrubbers and baghouses and TDS concentrations for cooling towers and quench towers. The proposed permit, therefore, violates 42 U.S.C. § 7661c(c) ("Each permit issued under this subchapter shall set forth inspection, entry, monitoring, compliance certification, and reporting requirements to assure compliance with the permit terms and conditions."). The plain language of this provision means "that a monitoring requirement insufficient 'to assure compliance' with emission limits has no place in a permit unless and until

[66] *See* discussion: In re: Northern Michigan University Ripley Heating Plant, PSD Appeal No. 08-02, at 11 – 16 (EAB Feb. 18, 2010).

[67] *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 219-226 (EAB 2000).

[68] Clean Air Act § 504, 42 U.S.C. § 7661c; La. Admin. Code tit. 33.Pt. III, section 507.H.

it is supplemented by more rigorous standards." *Sierra Club v. EPA*, 536 F.3d 673 (D.C. Cir. 2008)

The testing provisions for all sources except SO2 emissions from the coke battery FGD stacks and the MEROS system sinter vents and NOx, CO, and SO2 emissions from NSPS boilers are not enforceable because compliance testing is either not required at all or is infrequent – one stack test over the life of the facility or testing every 2.5 to 5 years. The permit does not establish any method to determine compliance with BACT limits at other times. This is particularly important here as this is a one-of-a-kind, first generation facility without any prior operating experience. The absence of testing or infrequent (and ambiguous) testing renders BACT limits unenforceable as a practical matter and violates 42 U.S.C. § 7661c(c).

The standard hierarchy for specifying monitoring to determine compliance is: (1) continuous direct measurement where feasible; (2) initial and periodic direct measurement where continuous monitoring is not feasible; (3) use of indirect monitoring, e.g., surrogate monitoring, where direct monitoring is not feasible; and (4) equipment and work practice standards where direct and indirect monitoring are not feasible.[69] The monitoring in the draft permits do not comport with this guidance. In some instances, as detailed below, the permit fails to provide for any testing to demonstrate compliance.

Except for the limited use of CEMS noted above, all testing is by periodic stack tests. A stack test is a manual testing procedure, normally conducted according to standard EPA testing methods. They are short-term, typically lasting only 1 to 3 hours. Assuming a 50-year life for the facility and testing every five years, stack testing would only measure about 0.007% of the emissions from the facility over its lifetime. A widely used handbook, Continuous Emission Monitoring, notes that: "[d]ue to the planning and preparations necessary for these manual

[69] NSR Manual, p l.3.

methods, the source is usually notified prior to the actual testing. This lead time allows the source to optimize both operations and control equipment performance in order to pass the tests."[70] EPA has also observed: "[m]anual stack tests are generally performed under optimum operating conditions, and as such, do not reflect the full-time emission conditions from a source."[71] Thus, stack tests generally follow maintenance and tuning, are conducted at maximum load, (which is frequently not worst-case) and ignore periodic excursions due to startups, shutdowns, and malfunction, which must be considered to determine if hourly and annual emission rates are met.

Further, this type of infrequent testing, even if performed without preparation, provides no information about emissions at any other time because emissions are from largely batch processes that are highly variable.[72] The compliance provisions must assure that BACT conditions are met on a continual basis.[73]

The proposed testing is not adequate to assure compliance with any emission rate, especially the BACT determinations and the emissions used in the PSD air quality modeling analyses for the reasons set out below. It is feasible to directly and continuously monitor filterable PM10, CO, VOC, SO2, and NO_x emissions from these sources and to periodically monitor both PM10 and PM2.5. Further, it is feasible to conduct more frequent stack tests either annually or more frequently. Unless and until LDEQ modifies the draft permits to require monitoring sufficient to assure compliance, the permit will be unlawful.

---

[70] James A. Jahnke, Continuous Emission Monitoring, 2nd Ed., John Wiley & Sons, Inc., New York, 2000, at p. 241.
[71] 40 Fed.Reg. 46241 (October 6, 1975).
[72] *See*, *e.g.*, Discussion of dry FGD in E-Mail from Mark Dutchess, Harmon USA, to Christopher P. Allen, Re: Typical Maintenance for the Hamon FGD System, May 12, 2007, Ex. 15 to Public Comments Response Summary, LDEQ-02591.y
[73] NSR Manual, p. B.56.

LDEQ said that it has incorporated all emission limitations, monitoring, recordkeeping, and reporting requirements of the Title V permit relating to PMIPMlO/PM2.5, S02, NOx, CO, and VOC emissions into the PSD permit. This blanket incorporation, however, does not address Petitioners concerns. Many BACT limits are expressed in terms other than lb/hr and ton/yr. Specific examples, which are discussed below, include control efficiencies for scrubbers and baghouses and TDS concentrations for cooling towers and quench towers. No monitoring or recordkeeping is required to assure these limits are met. Further, as noted in our comments, the Title V permit's specific conditions themselves are deficient as they lack any responsive monitoring or recordkeeping. Thus, incorporation does nothing to address Petitioner's concerns.

1. The Title V Permit Requires No Testing for Many Point Sources Subject to BACT Limits.

The draft Title V permit does not require any testing to determine if BACT limits for these sources are met. These include[74] (parentheticals are PM10 emissions from the Emission Rates table):

- COK-101 – Coke Battery 1 Coal Charging (3.00 ton/yr)
- COK-102 – Coke Battery 1 Coke Pushing (7.16 ton/yr)
- COK-104 – Coke Battery 1 Coke Handling (8.76 ton/yr)
- COK-112 – Coke Battery 1 FGD Lime Silo Unloading (0.015 ton/yr)
- COK-113 – Coke Battery 1 FGD Waste Loading (0.09 ton/yr)
- COK-201 – Coke Battery 2 Coal Charging (3.00 ton/yr)
- COK-202 – Coke Battery 2 Coke Pushing (7.16 ton/yr)
- COK-203 – Coke Battery 2 Coke Quench Tower (52.48 ton/yr)
- COK-204 – Coke Battery 2 Coke Handling (8.76 ton/yr)
- COK-212 – Coke Battery 2 FGD Lime Silo Unloading (0.015 ton/yr)
- COK-213 – Coke Battery 2 FGD Waste Handling (0.09 ton/yr)
- SIN-102: Sinter Plant Main Dedusting Baghouse Vent (73.05 ton/yr)
- SIN-105: Sinter FGD Lime Silo Unloading (0.01 ton/yr)
- SIN-106: Sinter FGD Waste Loading (0.01 ton/yr)
- SLG-405: Slag Mill Crushers/Screeners Baghouse Vent (0.96 ton/yr)
- SLG-407: Slag Mill Transfer Points Baghouse (0.02 ton/yr)

[74] These are all emission units for which testing is feasible.

- SLG-408: Slag Mill Product Silo Baghouse Vent (0.53 ton/yr)
- SLG-402: Slag Mill Dryer Stack (0.89 ton/yr)
- STC-101: Stock House 1 Baghouse Vent (0.08 ton/yr)
- STC-210: Stock House 2 Baghouse Vent[75]

The Title V permit must be modified to require at least an initial stack test for sources that vent to a baghouse to confirm emission calculation assumptions. Further, the large sources of PM10 emissions – the coke battery 2 quench tower (52.48 ton/yr) and the sinter plant main dedusting baghouse vent (73.05 ton/yr) should be tested at least annually and surrogates used for all other periods. Surrogate monitoring should be required for vent sources with emissions under 1 ton/yr.

The fact that there are two similar quench towers, one of which is tested every five years (see below), should not exempt the other quench tower from testing. Similar sources, even when superficially identical, can differ from unit to unit as pig iron sources are not off-the-shelf technology. This is especially true of these quench towers as they will be the first towers to cool blocks of coke, generated by the Udhe first-generation, never-tested block coke charging process.

LDEQ responded by stating that the BACT limits for Coke Battery I Coal Charging (COK-IOI) (EQT 0001) and Coke Battery 2 Coal Charging (COK-201) (EQT 0007) have been established at 0.0081 lb/ton of dry coal charged, the limit associated with 40 CFR 63, Subpart L - National Emission Standards for Coke Oven Batteries. LDEQ also said that the limit will be achieved through charging of compacted coal. LDEQ further said that compliance shall be determined with other applicable procedures described in 40 CFR 63.309(a) - (m) and 40 CFR 63.7300(a).

[75] The "Emission Rates for Criteria Pollutants does not include this source.

LDEQ's explanation of the limits it established violate NESHAPS. First, as discussed above in the MACT section, LDEQ cannot rely on the use of compacted coal to satisfy NESHAPS—and cannot be used to exempt Nucor from monitoring to determine compliance. The regulations cited for compliance do not require any testing, but rather go to assuring proper maintenance and operation procedures. The NESHAPS requires that they install control options that are vented to a stack that can be monitored. Compacted coal is an end run around NESHAPS and compliance monitoring.

The permit contains limits in lb/hr, ton/yr and opacity expressed as percent. The permit only requires monitoring of opacity and visible emissions (Conditions 78, 79). This does not assure compliance with limits expressed as lb/hr or ton/yr.

LDEQ said that regarding the Coke Battery 2 Coke Quench Tower (COK-203) (EQT 0009), it agrees that testing should be required, and a testing requirement identical to that associated with Coke Battery 1 Coke Quench Tower (COK-103) (EQT 0003) has been added to the permit. LDEQ also said that based on the applicability of 40 CFR 63, Subpart CCCCC – NESHAPS for Coke Ovens: Pushing, Quenching, and Battery Stacks, which also regulates particulate matter emissions and contains additional monitoring, recordkeeping, and reporting requirements, annual testing is not required.

Petitioners would like to point out that Compliance with MACT testing requirements does not assure compliance with BACT limits, which must be met on a continuous basis.

LDEQ also said in that following sources are controlled via baghouses and are subject to daily monitoring provisions: Slag Mill Crushers/Screeners Baghouse Vent (SLG-405) (EQT 0048), Slag Mill Transfer Points Baghouse Vent (SLG-407) (EQT 0050), and Slag Mill Product Silo Baghouse Vent (SLG-408) (EQT 0051). These sources are also members of the Slag Mill

Process Area (SlagMill) (PCS 0003) and subject to an opacity limitation and daily monitoring requirement per 40 CFR 63, Subpart FFFFF - National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities. Testing of these sources is not warranted.

LDEQ requires only visible emissions monitoring. *See e.g.*, Conditions 655, 685 ("Visible emissions monitored by visual inspection/determination daily."); Condition 666 (If visible emissions observed, return to compliance within 3 working days.); Condition 662 (requiring followup Method 9 testing if an event occurs). Petitioners object to these conditions because they do not define "visible emissions," nor what constitutes an "event." The conditions are ambiguous and cannot assure continuous compliance.

2. The Title V Permit Requires No Testing for Many Non-Point Sources Subject to BACT Limits.

The facility includes many non-point sources, which are sources that are not vented through a stack but rather are emitted from area or volume sources. These sources include storage piles, haul roads, slag granulation operations, and unenclosed drop and loading points:

- FUG-101: Unpaved Road Fugitive Dust (21.81 ton/yr)
- FUG-102: Paved Road Fugitive Dust (0.74 ton/yr)
- SLG-101 – 403: Various Slag Processing Steps
- SLG-306: Air-Cooled Slag Processing Stockpiles (0.44 ton/yr)
- SLG-406: Air-Cooled Slag Processing Stockpiles (14.62 ton/yr)
- DOC-101/102: Loading/Unloading Gantry Cranes
- DST-101/201: Blast Furnace Topgas Dust Catcher
- PIL-101: Coal Storage Piles (0.86 ton/yr)
- PIL-102: Iron Ore Pellet Storage Piles (4.01 ton/yr)
- PIL-103: Flux Storage Piles (0.79 ton/yr)
- PIL-104: Pig Iron Storage Piles (0.21 ton/yr)
- PIL-105: Granulated Slag Storage Piles (1.04 ton/yr)
- PIL-106: Sinter Storage Piles (0.73 ton/yr)
- PIL-107: Coke Breeze Storage Piles (0.33 ton/yr)
- PIL-108: Mill Scale Storage Piles (0.35 ton/yr)

The BACT determination and other emission requirements for these sources commonly include wet suppression using water sprays. The draft Title V permit contains no emission limitations, testing, or record-keeping requirements for any of these sources. Unless LDEQ modifies the permit to add specific emission limits and require testing and recording of emission calculation inputs including silt loading, moisture content, wind velocity, and quantity of material handled; periodic inspections; and daily visual observations, the permit will be unlawful.

LDEQ responded to this issue (RTC, 258.C.2) stating that to mitigate emissions from Unpaved Road Fugitive Dust (FUG-IOI) (ARE 0002) and Paved Road Fugitive Dust (FUG-I02) (ARE 0003), Nucor must water roadways, periodically sweep paved roads, limit the speed of vehicles on such roads, and take all reasonable precautions to prevent particulate matter from becoming airborne. These precautions shall include, but not be limited to, those specified in LAC 33:III.l305.A.1-7 and the June 2009 or most currently- approved Nucor Steel Louisiana Dust Management Plan.[76] Compliance with the Dust Management Plan is a requirement of both the Title V and PSD permits.

As to fugitive road dust, Petitioners explained in Comment 266.C.4 why the subject provisions are not enforceable. LDEQ failed to respond to Petitioners' comments on these issues.

As to storage piles, Petitioners explained in Comment 266.C.1 that the South Coast Air Quality Management District (SCAQMD) had studied the efficacy of similar, though more aggressive plans to control fugitive dust emissions from similar sources and found them to not work. See photographs that illustrate the types of problems likely to occur under the LDEQ Dust Management Plan approach in SCAQMD Staff Report Rule 1158, Figures I-2 to I-11. In

[76] EDMS Document ID 42019193, pp. 268 - 300 (Appendix J)

response to the inability of the Dust Control Plan approach to control fugitive dust, SCAQMD promulgated a regulation, revised Rule 1158, that eliminated outdoor storage of coke, coal, and sulfur and required other measures, not contemplated for Nucor. SCAQMD Rule 1158 and Staff Report, Rule 1158, Sec. III (submitted on our 4/22 CD).

The LDEQ responded that Nucor's piles could not be feasibly enclosed as the area would be too big (200 acres) and such an enclosure would not be cost effective, as emission reductions would be small. RTC 266.C, pp. 328-329. These responses are unsupported and incorrect.

First, the area or volume required to enclose all 45 of the piles in one fell swoop is irrelevant. The LDEQ did not offer even a plot plan to show what would be inside of these 200 acres. The full enclosure scheme cannot be evaluated without such a drawing. Single piles can be individually enclosed and linked by enclosed conveyors. See, for example, Figure 2-1 in the SCAQMD Rule 1158 Staff Report. Alternative material handling plans should have been evaluated. The record does not contain sufficient design information to evaluate this option on a pile-by-pile basis. Further, there are many viable methods that can be used, short of full enclosure, such as enclosure of loading and unloading and fully enclosed conveyors. The LDEQ did not respond beyond proposing a facially infeasible option with no supporting engineering design basis to allow a more reasoned response.

Second, the LDEQ alleges its giant enclosure would not be cost effective without presenting a shred of evidence. RTC 266.C, p. 329. It goes on to argue that SCAQMD Rule 1158 "was not developed through a BACT process considering economic, energy, or environmental impacts of the selected control." RTC 266.C, p. 329. This is incorrect. Extensive environmental review was conducted. See SCAQMD Rule 1158 Staff Report, p. ES-4. Cost analyses were prepared and SCAQMD found enclosures were a cost effective way to reduce

particulate emissions from storage piles, with costs ranging from $47/ton to $120/ton of enclosure capacity. Further, the U.S. EPA reviewed the rule, concluded it satisfied BACT, and incorporated it into the SCAQMD's State Implementation Plan. Comment 266.C.1, p. 326.

Finally, LDEQ's argument that its gigantic enclosure would not be cost effective as the emission reductions are small is a sham. The emissions from both roadways and storage piles are significantly underestimated, by assuming very high, unattainable control efficiencies that are not enforceable. *See* Comments 117, 267.A, 267.B, 267.C, and 285. The LDEQ does not address the control efficiency issue, but rather points to the unenforceable Dust Management Plan amply demonstrated by the SCAQMD studies to not control fugitive dust. RTC 267.C, p. 339.

The Dust Management Plan (DMP) is not adequate to assure that the aggressive dust control efficiencies (90% – 95%) used to estimate emissions, model ambient impacts, and satisfy BACT requirements are actually met. A tiny increase in particulate matter emissions could result in exceedances of ambient air quality increments and thresholds. The referenced monitoring is not a substitute for assuring that emissions do not exceed the assumed levels.

First, it occurs on weekly. Anything could happened between the weekly spot checks. Second, it is conducted with a handheld portable instrument of unknown quality by a person of unknown skills and training. Due to the proximity of so many nearby sensitive receptors, permanent ambient PM10 monitoring stations should be established that are alarmed to the control room and trigger an immediate response. Second, the thresholds, 135 ug/m3 and 100 ug/m3, are very high and unsupported in the record. These are high enough to allow exceedances of ambient air quality standards with no response. This type of program, testing for thresholds with a handheld monitor, was found to be ineffective by the SCAQMD for fugitive

dust control over a decade ago. See SCAQMD Rule 1158 Staff Report. The best way to ensure fugitive dust is controlled is to control it at the source using enclosures.

LDEQ also said that direct measurement of emissions from paved and unpaved roads is not technically feasible, referring to the definition of BACT and the NSR's definition. Petitioners point out, however, that there must be a demonstration on the record that it is economically unreasonable or technically infeasible to monitor. There is no such demonstration here for any of the subject sources. There is no design information in the record that would allow one to determine if these tests are met.

3. Testing Once Over Facility Lifetime is Inadequate.

The draft Title V permit only requires a single, initial stack test, within 180 days of startup, for the following sources (parenthetical PM10 unless otherwise stated):

- Condition 197, COK-110: Coke Battery 1 HRSG Bypass Vents Cap (PM10 -32.61 ton/yr; SO2 - 535.43 ton/yr)
- Condition 204, COK-211: Coke Battery 2 HRSG Bypass Vents Cap (PM10 – 7.44 ton/yr; SO2 - 1102.1 ton/yr)
- Condition 572, SLG-403: Slag Mill Dryer Baghouse Vent (4.82 ton/yr)
- Condition 660, SLG 409: Slag Mill Loading Collector Baghouse Vent (1.37 ton/yr)
- Condition 670, SLG-103: Slag Granulator 1 Cap (PM10 – 30.8 ton/yr; SO2 – 37.66 ton/yr)
- Condition 682, SLG-203: Slag Granulator 2 Cap (PM10 – 30.8 ton/yr; SO2 – 37.66 ton/yr)
- Condition 845, PCI-101: PCI Mill Vent (3.26 ton/yr)

A single stack test over a 50+ year lifespan, when the facility is new, is not adequate to assure continuous compliance, particularly for major sources of emissions, such as the HRSG bypass vent caps and slag granulator caps. Unless LDEQ modifies the permit to require monitoring sufficient to assure compliance at these sources, the permit will be unlawful.

Regarding LDEQ's RTC, 258.C.3, a stack test measures actual emissions in pounds per hour. The air quality modeling uses actual emissions. The NSR Manual states: "BACT

emission limits or conditions must be met on a continual basis at all levels of operation…demonstrate protection of short term ambient standards (limits written in pounds/hour) and be enforceable as a practical matter…"). The monitoring provisions cited by LDEQ do not measure emissions, but rather infrequently test surrogates, such as opacity, visible emissions, sulfur content of the feed, or throughput. The permits contain no way to relate an opacity measurement to an emission rate in pounds per hour. Thus, these types of measurements do not assure that the emissions in pounds per hour remain below the levels assumed in the air quality modeling.

Second, LDEQ advocates the use of a combination of NESHAPS and CAM monitoring to assure continuous compliance with PSD emission limits. There are separate statutory programs.

LDEQ also argues that compliance with certain surrogate or indicator parameters (e.g., opacity for particulate matter) and operating conditions demonstrate compliance with actual emissions that are not tested directly with the same frequency. This type of monitoring is sometimes referred to as "parametric monitoring" or "indicator monitoring." This type of monitoring does not assure compliance with the underlying limit, such as PM10 or SO2.

For example, Compliance Assurance Monitoring or CAM, one of the monitoring programs relied on by LDEQ, is not a replacement for direct measurement of emissions. The Preamble to the CAM regulations makes it clear that compliance with CAM indicator provisions does not make an emission rate enforceable. 62 FR 54900-54,947. The EPA has rejected this type of indicator monitoring unless the Permit is drafted to specifically to require this monitoring and make it enforceable, including establishing a correlation between the control equipment or

substitute parameters and the parameter of interest, e.g., between PM10 and its indicator, opacity or visible emissions.[77]

Unless a Permit explicitly states that an exceedance of an indicator is a violation of the underlying applicable requirement, the indicator does not assure that the underlying requirement is enforceable, it only provides a reasonable assurance of compliance. Compliance must be determined by a performance test or other similar data in which actual stack emissions are measured. The Permits do not specify that a violation of an indicator constitutes a per se violation of the underlying applicable requirement.

4. Testing Every 2.5 or 5 Years Is Inadequate.

The draft Title V permit only requires testing the following sources once after initial startup and thereafter, apparently every 5 years. The language of the subject testing conditions is ambiguous and could be read to require only two tests: an initial test and a second test five years later. However, the response to comments suggests that sources are tested every five years.[78] Thus, we assume this intent for these comments. By clearly stating testing is to occur every five years (parentheticals are PM10 emissions unless otherwise stated), the intent will be clarified.

- Conditions 9, 12, COK-100: Coke Ovens Coal Handling, Crushing, and Compacting (20.69 ton/yr)
- Conditions 64, 67, COK-103: Coke Battery 1 Coke Quench Tower (52.48 ton/yr)
- Conditions 223, 225, COK-111: Coke Battery 1 FGD Stack (PM10 - 7.44 ton/yr; SO2 - 1102.1 ton/yr)
- Conditions 252, 254, COK-211: Coke Battery 2 FGD Stack (PM10 - 7.44 ton/yr; SO2 - 1102.1 ton/yr)
- Conditions 332, 335, SIN-101: MEROS System Sinter Vent Stack (PM10 - 18.06 ton/yr; SO2 - 361.14 ton/yr)

[77] See, e.g., U.S. EPA Region 4 Objection, Proposed Part 70 Operating Permit, Tampa Electric Company, F.J. Gannon Station, Permit No. 0570040-002-AV; U.S. EPA Region 4 Objection, Proposed Part 70 Operating Permit, Oxy Vinyl, LP, Louisville, Kentucky, Permit NO. 212-99-TV; In re Fort James Camas Mill, Order Denying in Part and Granting in Part Petition for Objection to Permit, December 22, 2000; U.S. EPA Region 4 Objection, Proposed Part 70 Operating Permit, Southdown, Inc – Brooksville Plant, Hernando County, Florida, Permit No. 0530010-002-AV.

[78] Public Comment Response Summary, Comment 147, p. LDEQ-02518.

- Conditions 390, 391, SIN-103: Coke and Petcoke Crushing Baghouse Vent (17.49 ton/yr)
- Conditions 476, 478, CST-101: Cast House 1 Baghouse Vent (PM10 - 2.94 ton/yr; SO2 - 75.84 ton/yr)
- Conditions 518, 519, CST-201: Cast House 2 Baghouse Vent (PM10- 2.94 ton/yr; SO2 - 75.84 ton/yr)
- Conditions 721, 722, PWRBoiler: Common Requirements for Power Boilers
- Conditions 861, 865, STV-101: Blast Furnace 1 Hot Blast Stoves Common Stack (PM10 – 23.51 ton/yr; SO2 – 28.19 ton/yr)
- Conditions 880, 882, STV-201: Blast Furnace 2 Hot Blast Stoves Common Stack (PM10 – 23.51 ton/yr; SO2 – 28.19 ton/yr)

It is feasible to monitor all subject pollutants from these sources more frequently than once every five years. Unless LDEQ modifies the permit to require monitoring sufficient to assure compliance at these sources, the permit will be unlawful.

Likewise, the draft Title V permit only requires testing the following sources once after initial startup and thereafter, every 2.5 years. As noted for the 5-year tests, the language of the subject testing conditions is ambiguous and could be read to mean only two tests – an initial tests and a second test 2.5 years later. Therefore, clarification is necessary.

- Conditions 613, 618, SLG-406: Slag Mill Building Baghouse Vent (14.62 ton/yr)
- Conditions 762, 763, PIG-101: Pig Iron Desulfurization Station Baghouse Vent (23.10 ton/yr)

It is feasible to monitor all subject pollutants from these two sources more frequently. Unless LDEQ modifies the permit to require monitoring sufficient to assure compliance at these sources, the permit will be unlawful.

5. Continuous Emission Monitoring System (CEMS) Requirements are Unclear.

The draft Title V permit requires the use of a continuous emission monitoring system (CEMS) for some sources that are not otherwise required to meet NSPS. These sources include the coke battery FGD stacks and the sinter plant FGD stacks The draft of these conditions leaves it unclear as to whether the CEMS data will be used to determine compliance and if so, exactly how and with what limitations.

First, an SO2 CEMS is specified to monitor SO2 every 15 minutes at the Coke Battery 1 FGD Stack (COK-111, Condition 216) and Coke Battery 2 FGD Stack (Condition 245). However, the Specific Requirements do not indicate where the monitoring will occur, i.e., inlet or outlet of the dry FGD, or elsewhere. BACT for SO2 is a control efficiency which requires that both inlet and outlet concentrations be monitored. Is a CEMS proposed on both the inlet and outlet to determine control efficiency? If not, the permit should explain how compliance with the SO2 control efficiency in Condition 231 will be determined.

The draft Title V permit is silent as to whether the resulting SO2 CEMS data will be used to determine compliance with any emission limits in the Emission Rate table or be reported to the agency, where it becomes publicly available. Rather, elsewhere in the specific requirements, we learn that periodic stack tests will be used to determine compliance with certain unidentified emission limits at Battery 1 (Conditions 223, 225), including for SO2. The stack tests must be submitted to LDEQ, but not the CEMS data. The CEMS data should be used to determine compliance with all relevant SO2 emission limits and conditions, e.g., the control efficiency requirement and the emission rates in the Emission Rate table, and submitted quarterly to LDEQ in an electronic file. Further, all required emission limits, including NSPS, must be clearly mandatory. CEMS data must be reported to LDEQ.

Second, the draft Title V permit also apparently calls for an SO2 CEMS for the MEROS System Sinter Vent Stack (Condition 325). However, standing alone, this condition is ambiguous. It states: "sulfur dioxide recordkeeping by continuous emission monitor (CEM) continuously." This is unclear.

There is no separate condition, as for the FGD Stacks, that states "sulfur dioxide monitored by continuous emission monitor (CEM) once every 15 minutes," e.g., see Condition

244. Language requiring SO2 CEMS monitoring must be added. Otherwise, the comments immediately above apply to these two conditions, namely it is unclear how the data will be used (e.g., to determine compliance with what) and reported.

LDEQ's RTC, 258.C.5 is not on point. LDEQ failed to show how the CEMS data will be used to determine continuous compliance with the SO2 emission rates in the Criteria Pollutant Emission Rate table.

D. Filter Manufacturer's Certifications.

BACT for PM10 and PM2.5 for many sources is determined to be fabric filter baghouses designed to meet a specific control efficiency, typically 99% to 99.5%. The draft Title V permit does not require any testing to demonstrate that the BACT control efficiency (and sometimes corresponding grain loadings) are met each day. Rather, it only requires the filter manufacturer's initial certification as proof that BACT has been met.

The performance of a baghouse degrades over time and with degree of maintenance. Further, the owner can modify the performance of the baghouse by, for example, changing to a different filtration media to save money or changing the cleaning frequency. Thus, the initial guarantee is insufficient to ensure that emissions will be reduced by the specified amount over the life of the facility. The EPA concludes: "Vendor guarantees may provide an indication of commercial availability and the technical feasibility of a control technique and could contribute to a determination of technical feasibility or technical infeasibility, depending on circumstances. However, EPA does not consider a vendor guarantee alone to be sufficient justification that a control option will work."[79] Such a guarantee does not assure continuous compliance with a BACT limit expressed as a control efficiency. Testing verifies compliance over the life of the baghouse.

[79] NSR Manual, p. B.20.

The draft Title V permit does not require any testing to verify baghouse control efficiencies relied on to satisfy BACT. It does require that some of these units (indicated below by an asterisk) be initially tested for filterable particulate emissions at the baghouse outlet using EPA Method 5. However, filterable particulate emissions at the outlet does not reveal whether the baghouse is performing at the BACT level for PM10 and PM2.5. BACT is an emission limitation based on the maximum degree of reduction achievable. For these reasons, it is very important that compliance with the degree of reduction be continuously monitored and enforceable.

This requires simultaneous testing at both the baghouse inlet and outlet, which is not a requirement in the draft Title V permit. An outlet measurement of filterable particulates does not satisfy BACT emission limits for PM10 and PM2.5 expressed as a control efficiency. Some of the conditions that rely on a baghouse control efficiency as BACT and a manufacturer's certification as the only compliance method are as follow (the asterisk indicates outlet performance testing for filterable particulate matter by EPA Method 5, which does not measure either PM10 or PM2.5):

- Condition 6, COK-100: Coke Ovens Coal Handling, Crushing, and Compacting*
- Condition 73, COK-104: Coke Battery 1 Coke Handling
- Condition 84, COK-112: Coke Battery 1 FGD Lime Silo Unloading
- Conditions 93, 100, COK-113: Coke Battery 1 FGD Waste Unloading
- Condition 151, COK-204: Coke Battery 2 Coke Handling
- Conditions 161, 168, COK-212: Coke Battery 2 FGD Lime Silo Unloading
- Conditions 172, 178, COK-213: Coke Battery 2 FGD Waste Loading
- Conditions 181, 188, COK-214: Coke Bin Tower
- Condition 233, COK-111: Coke Battery 1 FGD Stack*
- Condition 260, COK-211: Coke Battery 2 FGD Stack*
- Conditions 376, 377, SIN-102: Sinter Plant Main Dedusting Baghouse Vent
- Conditions 392, 393, SIN-103: Coke and Petcoke Crushing Baghouse Vent*
- Condition 397, 403, SIN-105: Sinter FGD Lime Silo Unloading
- Conditions 406, 413, SIN-106: Sinter FGD Waste Loading
- Condition 481, CST-101: Cast House 1 Baghouse Vent*

- Condition 522, CST-201: Cast House 2 Baghouse Vent*
- Condition 566, SLG-403: Slag Mill Dryer Baghouse Vent*
- Conditions 579, 585, SLG-404: Slag Mill Dry Slag Feed Bin Baghouse Vent
- Conditions 620, 621, SLG-406: Slag Mill Building Baghouse Vent*
- Conditions 634, 641, SLG-408: Slag Mill Product Silo Baghouse Vent
- Condition 666, SLG-409: Slag Mill Loading Collector Baghouse Vent*
- Condition 783, STC-101: Stock House 1 Baghouse Vent
- Condition 793, STC-201: Stock House 2 Baghouse Vent

E. There is No Monitoring For PM10 or PM2.5.

PM10 and PM2.5 require BACT analyses. 42 U.S.C. § 7475(a)(4) (requiring that "the proposed facility is [made] subject to the best available control technology for each pollutant subject to regulation under this chapter [i.e., the entire Clean Air Act unless exempted by § 112(b)(6)] emitted from, or which results from, such facility;"). All of the monitoring provisions in the draft Title V permit[80] require the use of EPA Method 5 to determine compliance with PM10 and PM2.5 limits. This method measures total particulate matter collected on filters placed in the gas stream. "Filterable" or "front-half" particulate matter, without regard to particle size, refers to this particulate matter parameter. It is not a method adequate to ensure compliance with standards for PM10 or PM2.5.

Method 5 does not measure PM10 or PM2.5 as it measures all sizes of filterable particulates and it excludes the "condensible" or "back-half" particulate matter, which is part of both PM10 and PM2.5. Thus, the draft permit requires no testing for any BACT limits for PM10 or PM2.5. EPA Methods 201 and 202 or Other Test Method (OTM) 27 measure PM10.[81] OTM 27 measures PM2.5. Revising the permit to require testing of the correct particulate matter parameters will allow the permit to meet the statutory requirements.

[80] *See* Conditions 9, 12, 64,, 67, 197, 204, 225, 252, 254, etc.
[81] Determination of PM10 and PM2.5 Emissions from Stationary Sources, Other Test Method 27, April 15, 2008, http://www.epa.gov/ttnemc01/prelim/otm27.pdf.

LDEQ failed to respond the Petitioners' PM10 argument (*see* RTC, 258E). The PSD pollutant PM10 is total, comprising the sum of filterable plus condensable. The permit only requires testing of the filterable component, by Method 5 (which overestimates). The permit is silent as to the requirement to test condensables for PM10.

F. Cooling Tower BACT Limits Do Not Assure Compliance.

The facility includes three cooling towers to service the blast furnace, iron solidification, and air separation plants. The applicant and LDEQ concluded that BACT for these cooling towers is a total dissolved solids ("TDS") concentration in the cooling water of less than or equal to 1,100 ppm and drift eliminators with an efficiency of 0.0005%. We commented that cooling water with less than 500 ppm is feasible. LDEQ did not respond to the substance of our comment, but instead asserted it had conducted a top-down BACT analysis in accord with the New Source Review Manual and repeated its BACT findings.[82] Thus, the BACT determination remains deficient as it does not require the maximum degree of reduction that is feasible for these cooling towers.

We further commented that the draft Title V permit does not assure that the BACT cooling tower limits are enforceable.[83] BACT emission limits must be met on a continual basis (expressed as an exhaust gas concentration or % reduction), demonstrate protection of ambient air quality standards (expressed in lb/hr), and be enforceable as a practical matter (contain appropriate averaging times.).[84] The LDEQ responded by modifying the cooling tower compliance conditions in the Title V permit. These modifications cure some, but not all of the enforceability issues.

[82] Response to Public Comments, Comment 115, pp. LDEQ-02503/2504.
[83] Comment 258.F.
[84] NSR Manual, p. B.56.

First, LDEQ's response erroneously refers to "quench towers with internal baffles."[85] Cooling towers are not quench towers and do not have internal baffles but rather internal chevrons referred to as drift eliminators. In response to our comment, LDEQ revised the permit to refer to "mist eliminating baffles,"[86] which is confusing. Conditions 846, 849, and 855 should be revised to state: "BACT is the use of a cooling tower equipped with a 0.0005% efficient drift eliminator."

Second, LDEQ's response requires a calculation to determine compliance with emission limitations in lb/hr and ton/yr. This calculation procedure requires three input variables: TDS, circulating water flow rate, and drift efficiency. The new permit conditions require TDS to be measured weekly. However, this does not cure the cooling tower enforceable issue as the drift efficiency and circulating water rate are not measured. Instead, they are based only on vendor certifications. A vendor guarantee does not confirm that equipment will perform as promised over its service lifetime. The NSR Manual, for example, explains: "…EPA does not consider a vendor guarantee alone to be sufficient justification that a control option will work."[87]

Permits for cooling towers commonly require initial testing to confirm the drift efficiency and continuous monitoring of circulating water flow rate. Cooling tower circuits are routinely equipped with flow meters that continuously measure circulating water flow rate. The Title V permit should be modified to require at least an initial test to confirm the drift efficiency, mandatory maintenance and work practice standards to assure the BACT drift efficiency is maintained, and continuous flow rate monitoring. The results of this testing should be used in the compliance calculation, rather than the design values certified by the vendors.

[85] RTC 258.F.
[86] Final Title V Permit, Conditions 846, 849, 855.
[87] NSR Manual, p. B.20.

CONCLUSION

For the reasons set forth above, Sierra Club and LEAN ask the Administrator to object to the Permit within 60 days upon receipt of this petition, as required by § 505 of the Act, because it violates the applicable requirements of the Act and the Louisiana implementation plan. 42 U.S.C. 7661d(b)(2). Sierra Club and LEAN also ask the Administrator to revoke the Permit upon her objection. 42 U.S.C. 7661d(b)(2). Further, if LDEQ "fails, within 90 days after the date of an objection . . . to submit a permit revised to meet the objection" Sierra Club and LEAN ask the Administrator to deny the Permit consistent with 42 U.S.C. 7661d(c).

Petitioners also ask the Administrator to "take such measures," as required by § 167 of the Clean Air Act, "including issuance of an order, or seeking injunctive relief, as necessary to prevent the construction" of the Nucor facility because it "does not conform to the requirements of [Part C—Prevention of Significant Deterioration—of the Act]. 42 U.S.C. 7477.

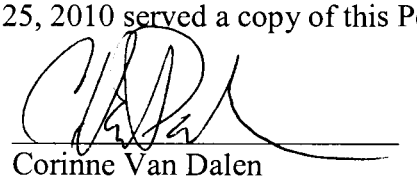
Submitted this 25th day of June, 2010, by,

Corinne Van Dalen, Staff Attorney
Tulane Environmental Law Clinic
6329 Freret Street
New Orleans, Louisiana 70118
Phone (504) 865-8814
Fax (504) 862-8721
On behalf of Sierra Club and Louisiana Environmental Action Network

Prepared in part by Zoe Wilde, Law Clerk

Cc:

I hereby certify that I have this June 25, 2010 served a copy of this Petition to those listed below.



Corinne Van Dalen

Via Certified U.S. Mail & Email
Disk containing exhibits sent via overnight mail
for delivery on 6/24/10
Lisa P. Jackson, Administrator
U.S. EPA Headquarters
Ariel Rios Bldg.
Mail Code 1101A
1200 Penn. Ave., NW
Washington, D.C. 20460

Dr. Alfredo Armendariz
Regional Administrator, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202
(214) 665-6444

Via Certified U.S. Mail & Email
Disk containing exhibits sent via overnight mail
for delivery on 6/24/10
Peggy Hatch, Secretary
Louisiana Department of Environmental Quality
602 N. Fifth Street
Baton Rouge, LA 70802

Shannon Snyder
U.S. Enviroemental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Mail Code: 6PDR
Dallas, Texas 75202

Via Certified U.S. Mail & Email
Disk containing exhibits sent via overnight mail
for delivery on 6/24/10
Mr. Joe Rutkowski, Vice President
Nucor Corporation
1915 Rexford Rd.
Charlotte, North Carolina 28211

BEFORE THE ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY

In the Matter of Title V Air Operating Permits
and Prevention of Significant Deterioration Permit
for

Consolidated Environmental
Management, Inc./Nucor Steel, Louisiana
To construct and operate a Pig Iron and Direct
Reduction Iron manufacturing facility in
Convent, St. James Parish, Louisiana

Permit No.: 2560-00281-V1 (modified pig iron process Title V permit)
Permit No.: 3086-V0 (DRI Title V)
Permit No.: PSD-LA-751 (DRI PSD)

Issued by the Louisiana Department of
Environmental Quality

PETITION REQUESTING THE ADMINISTRATOR TO OBJECT TO TITLE V OPERATING PERMITS NOS. 2560-00281-V1 AND 3086-V0 ISSUED TO CONSOLIDATED ENVIRONMENTAL MANAGEMENT, INC. / NUCOR STEEL LOUISIANA

Pursuant to section 505(b) of the Clean Air Act, 42 U.S.C. § 7661d(b)(2) and 40 C.F.R. § 70.8(d), Louisiana Environmental Action Network ("LEAN") and Sierra Club petition the Administrator of the U.S. Environmental Protection Agency to object to the modified Title V Air Operating Permit (No. 2560-00281-V1) for the pig iron plant and the initial Title V Air Operating Permit (No. 3086-V0) for the Direct Reduced Iron ("DRI") plant issued on January 27, 2011 by the Louisiana Department of Environmental Quality ("LDEQ") to Consolidated Environmental Management Inc., Nucor Steel Louisiana ("Nucor") for its iron manufacturing facility in Convent, Louisiana.

Sierra Club and LEAN base this petition on comments that they, Zen-Noh Grain, and EPA Region 6 filed with LDEQ during the public comment period on the permits at issue. Sierra Club and LEAN also adopt and incorporate by reference Zen-Noh Grain's petition asking the EPA to object to the modified Title V permit for the pig iron plant and the initial Title V permit for the DRI plant.

SUMMARY

EPA should object to Nucor's modified pig iron Title V permit and initial DRI Title V permits because they violate the Clean Air Act and the Louisiana state implementation plan ("SIP") for the following reasons:

(1) LDEQ failed to aggregate the DRI and Pig Iron facilities and permit them under one PSD permit as one major source.

(2) LDEQ failed to apply MACT standards for the topgas boilers.

(3) LDEQ failed to include limits for PM2.5 emissions in the Title V permit for the pig iron plant and also failed to provide PM2.5 emission limits in the PSD permit for the DRI plant.

(4) Nucor's DRI Title V permit violates the Clean Air Act and the Louisiana SIP because the limit for natural gas consumption is not BACT for greenhouse gas emissions.

For these reasons, the Administrator should object to the permits within 60 days upon receipt of this petition, as required by § 505 of the Act, because they violate the applicable requirements of the Act and the Louisiana implementation plan. 42 U.S.C. § 7661d(b)(2). The Administrator should revoke the permits upon her objection. *Id.* § 7661d(b)(3).

STATUTORY AND REGULATORY FRAMEWORK

One of the primary purposes of the Title V permit program is to "enable the source, States, EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." 57 Fed. Reg. 32250, 32251 (July 21, 1992). Thus, a Title V permit issued by LDEQ must "incorporate all federally applicable requirements for each emissions unit at the source," LAC 33:III.507.A.3, and include "enforceable emission limitations and standards, . . . and such other conditions as are necessary to assure compliance with applicable requirements of this chapter [the CAA], including the requirements of the applicable [SIP]." 42 U.S.C. § 7661c(a). Federally applicable requirements that must be incorporated into a title V permit include standards and other requirements in the SIP, terms and conditions in a PSD permit, new source performance standards ("NSPS") promulgated pursuant to section 111 of the Act, and emission standards for hazardous air pollutants ("NESHAP" or "MACT") promulgated pursuant to section 112 of the Act. 40 C.F.R. § 70.2; LAC 33:III.502.A. A Part 70 permit cannot impose new substantive air quality control requirements or "relax any applicable requirements, including those contained in the SIP." 57 Fed. Reg 32250, 32280.

Section 505(b) of the Act, 42 U.S.C. § 7661d(b)(1), provides that "[i]f any permit contains provisions that are determined by the Administrator as not in compliance with the applicable requirements of this chapter . . . the Administrator shall . . . object to its issuance." If EPA does not object within 45 days after a permit has been proposed, any person may petition EPA (within 60 days of the expiration of the 45-day period) to take such action. A petition must be based on "objections to the permit that were raised with reasonable specificity during the public comment period . . . (unless the petitioner demonstrates in the petition to the

Administrator that it was impracticable to raise such objections within such period or unless the grounds for such objection arose after such period." § 7661d(b)(2). EPA "*shall* issue an objection" if the petitioner demonstrates that the permit is not in compliance with the requirements of the Act or SIP. *Id.* (emphasis added); *see also* 40 C.F.R. § 70.8(c)(1). The duty to object is *not* discretionary, *New York Public Interest Research Group, Inc. v. Whitman*, 321 F.3d 316, 332-33 (2nd Cir. 2003), and applies whether the petitioner demonstrates violations of either substantive or procedural requirements. *Sierra Club v. Johnson*, 436 F.3d 1269, 1280 (11th Cir. 2006).

Where a person bases the petition on violations of PSD or the SIP, EPA will generally look to see whether the petitioner has shown that the state permitting authority did not "(1) follow the required procedures in the SIP; (2) make PSD determinations on reasonable grounds properly supported on the record; [or] (3) describe the determinations in enforceable terms." In *the Matter of Louisville Gas and Electric Company, Trimble County, Kentucky*, Part 70/PSD Air Quality Permit # V-02-043 Revisions 2 and 3, Order Responding to Issues Raised in April 28, 2008 and March 2, 2006 Petitions, and Denying in Part and Granting in Part Requests for Objection to Permit, August 12, 2009, at 5.

PROCEDURAL REQUIREMENTS

LDEQ transmitted a draft permit to the Administrator for review on January 19, 2011, triggering EPA's 45-day review period as required by CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2). Sierra Club and LEAN file this petition within sixty days following the end of EPA's review period as required by CAA § 505(b)(2), 42 U.S.C. § 7661d(b)(2). The Administrator has sixty days to grant or deny this petition. *Id.* Since LDEQ has issued the

permits, "the Administrator shall modify, terminate, or revoke such permit[s]" upon its objection. 42 U.S.C. § 7661d(b)(3).

SPECIFIC OBJECTIONS

I. EPA MUST OBJECT TO THE TITLE V PERMITS BECAUSE LDEQ FAILED TO AGGREGATE PSD PERMITTING FOR EMISSIONS FROM THE ENTIRE FACILITY.

EPA must object to the Title V permits because LDEQ failed to aggregate the pig iron and DRI processing units under a single PSD permit consistent with Clean Air Act's PSD requirements. *See, e.g.*, 42 U.S.C. §§ 7470-7477; 40 C.F.R. §§ 51.165, 52.21; La. Admin. Code tit. 33, pt. III, § 509. By issuing separate PSD permits for the pig iron process and DRI process, LDEQ allowed Nucor to circumvent the air quality impact analysis prerequisites. For example, LDEQ did not require Nucor to perform the air quality impact modeling -- for NAAQS review and preconstruction monitoring applicability -- for all emission sources in the aggregate facility. Instead, for sulfur dioxide ("SO2") and particulate matter ("PM10" and "PM2.5"), Nucor modeled only emissions from the DRI process, and found them to be below the SIL.

Furthermore, by permitting Nucor's DRI and pig iron units separately, LDEQ has deprived the public of the opportunity to review and comment on the aggregate emissions and air quality impacts from the whole plant. And by piecemealing the permits, LDEQ has failed to require PSD review for greenhouse gases (GHG) for the entire plant. Instead of two PSD permits, one of which contains a GHG analysis and another which contains no GHG analysis, one PSD permit must be issued for the entire Nucor plant.

The pig iron and DRI processes are part of a single "source," so LDEQ must permit them together, not as two separate sources. The Louisiana SIP mandates PSD permits for "the construction of any new *major stationary source*." LA. ADMIN. CODE, tit. 33, pt. III, § 509(A)1 (emphasis in original). The SIP defines "stationary source" as any "building, structure, facility,

or installation that emits or may emit any pollutant subject to regulation under this Section." LA. ADMIN. CODE, tit. 33, pt. III, § 509(B). The SIP further defines a "source" such that it shall encompass "all of the pollutant-emitting activities which belong to the same industrial grouping [*i.e.*, same two-digit SIC code], are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control)." *Id.*; *see also* 40 C.F.R. § 51.166(b)(6) (same). This definition creates a simple three-pronged test to determine whether a group of pollutant-emitting activities is a single source requiring a single PSD permit.[1] A regulator needs only to determine if the activities belong to the same owner, are next to each other or on the same parcel of property, and fall within the same two-digit SIC code.

Here, the two iron smelting activities meet all three prongs of the "stationary source" test, and thus should be subjected to a single PSD permit. First, Nucor is locating the pig iron and DRI process pollutant-emitting activities on the same parcel of land in St. James Parish. The property is contiguous, and even shares the same roads and water service system. Second, Nucor owns and controls both pollutant-emitting activities, and operationally both will be subject to the same management structure. *See* La. Electronic Document Management System (EDMS) Doc. No. 7731641, at 372, 378; EDMS Doc. No. 7731649, at 404, 409. Third, both of the pollutant-emitting activities are iron foundries. All "iron & steel foundries" such as the Direct Reduced Iron foundry and the Pig Iron foundry here, share one SIC code—code 3320.[2]

---

[1] *See In the Matter Of Kerr-McGee/Anadarko Petroleum Corporation, Frederick Compressor Station* (Permit Number: 950PWE035), Order Responding to Petitioners' Request that the Administrator Object to Issuance of a State Operating Permit, Oct. 8, 2009 [hereinafter, *Anadarko Order*] (applying three-part test to determine the source).

[2] *See* Securities & Exchange Commission, Division of Corporation Finance, Standard Industrial Classification (SIC) Code List, *available at* http://www.sec.gov/info/edgar/siccodes.htm. Note that the Administrator required only that the SIC codes for both activities be within a "major group", i.e., groups sharing the same first two digits of the four digit code. Here, both DRI and Pig Iron fall within precisely the same code – Iron and Steel Foundries, code 3320. *See id.*

II. EPA MUST OBJECT TO THE TITLE V PERMIT FOR THE PIG IRON PROCESS BECAUSE THE PERMIT FAILS TO APPLY MACT STANDARDS FOR THE TOPGAS BOILERS.

As LDEQ acknowledges, the Nucor pig iron complex is a "major source" of hazardous air pollutants under § 112 of the Clean Air Act.[3] The Title V permit for the pig iron plant, however, violates Clean Air Act § 112(j) by failing to impose case-by-case MACT standards for the facility's industrial boilers. *See* 42 U.S.C. § 7412(j)(5) (requiring that the "permit . . . shall contain emission limitations for the hazardous air pollutants subject to regulation under this section and emitted by the source that the Administrator (or the State) determines, on a case-by-case basis, to be equivalent to the limitation that would apply [if EPA had timely promulgated a standard]."). The permit is also invalid because it fails to "include enforceable emission limitations and standards . . . as are necessary to assure compliance with applicable requirements of this Act" because it does not contain emissions limits consistent with § 112(j)(5). 42 U.S.C. § 7661(c) (mandating conditions for Title V permits). Moreover, construction of the facility would be illegal under the Clean Air Act § 112(g)(2), codified at 42 U.S.C. section 7412(g)(2). *See Sierra Club, Inc. v. Sandy Creek Energy Associates*, --- F.3d ----, 2010 WL 4725044 (5th Cir. 2010) (finding construction of a coal-fired electric generating plant that failed to receive a final MACT determination for its boiler in violation of § 112(g) of the Clean Air Act).

Under §112(c) of the Clean Air Act, EPA created source categories for major sources that emit one or more hazardous air pollutants listed in §112(b).[4] The category of industrial boilers is defined as "a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity." 40 C.F.R. 63.7575 (2009). Nucor's topgas boilers fit within the EPA's definition of industrial boilers.

[3] Title V/Pig Iron/Air Permit Briefing Sheet, p. 7.
[4] Robert J. Martineau, Jr., *Hazardous Air Pollutants* in Clean Air Act Handbook, 227, 239 (Robert J. Martineau, Jr. and David P. Novello eds., 2004).

EPA was required under the Clean Air Act to set maximum achievable control technology (MACT) standards for all major industry source categories by November 15, 2000.[5] EPA failed to meet this deadline to establish MACT standards for the industrial boilers category. It was not until January 13, 2003 that EPA proposed a rule for industrial boiler standards.[6] EPA's final rule for industrial boilers was published December 6, 2006.[7] However, on July 30, 2007 the D.C. Circuit vacated and remanded EPA's Boilers Rule.[8] EPA has promulgated new rules, but those are not yet effective.

The fact that EPA's MACT rule for industrial boilers is not yet effective does not mean that states and regulated parties are off the hook for regulating boilers. Section 112(j) of the Clean Air Act provides that in the event EPA fails to meet its deadline to promulgate standards, regulated parties are required to submit permit applications beginning 18 months after the deadline date.[9] This 18-month period after the deadline for industrial boiler standards ended on May 15, 2002. Therefore, under §112(j) of the Clean Air Act, regulated parties are required to submit permit applications as of May 15, 2002 that include MACT standards for industrial boilers.

Section 112(j) and 40 C.F.R. §§ 63.50-63.56 are applicable requirements, and EPA must object to the Title V Permit because LDEQ failed to require them.

III. EPA MUST REJECT THE PERMITS BECAUSE LDEQ FAILED TO INCLUDE EMISSION LIMITS FOR PM2.5.

LDEQ failed to include limits for PM2.5 emissions in the Title V permit for the pig iron plant. As applicable requirements from the PSD permit, the Title V permit must include limits

[5] 58 Fed. Reg. 63941 (Dec. 3, 1993).
[6] 68 Fed. Reg. 1660 (Jan. 13, 2003).
[7] 71 Fed. Reg. 70651 (Dec. 6, 2006).
[8] *NRDC v. EPA*, No. 04-1385, (D.C. 2007).
[9] Clean Air Act, 42 U.S.C. §7412(j)(1-3).

for PM2.5. EPA must object to this Title V permit because it does not include emission limits for PM2.5. Furthermore, LDEQ failed to provide PM2.5 emission limits in the PSD permit for the DRI plant. Here, EPA must object to the Title V for the DRI plant because the PSD does not include limits for PM2.5.

LDEQ concluded that PM10 is an adequate surrogate for PM2.5. But LDEQ failed to provide a case specific demonstration that its use of PM10 as a surrogate for PM2.5 is reasonable under the facts and circumstances of this permit.

In 1997, the EPA set forth an interim policy that allowed permitting authorities to use "PSD and NSR program requirements for controlling PM10 emissions" as a surrogate approach for reducing PM2.5 emissions," where it proved "administratively impracticable" to directly address PM2.5 due to "technical and information deficiencies." However, in 2008, the EPA announced that as a result of technical developments and EPA actions, those technical "difficulties have largely been resolved," but allowed some continued use of the surrogate policy. 73 Fed. Reg. 28,321, 28,340-41 (May 16, 2008).

On August 12, 2009 EPA issued an order that a permit applicant may not avoid its obligation to assess the impacts of, and controls for, PM2.5 merely by providing an analysis of PM10. *In re: Louisville Gas & Electric Co., Trimble County, Kentucky, Petition No. IV-2008-3*, Order Responding to Issues Raised in April 28, 2008 and March 2, 2006 Petitions, and Denying in Part and Granting in Part Requests for Objection to Permit at 42 (Aug. 12, 2009), at 44. In order to use EPA's PM10 surrogate policy, the permit applicant would have to provide a case specific demonstration that such use is reasonable under the facts and circumstances of the permit. *Id.* The EPA stated that this demonstration must include: (1) a showing of sufficient correlation between the plant's PM10 and PM2.5 emissions so as to provide "confidence that the

statutory requirements will be met for PM2.5 using the controls selected through a PM10 NSR analysis" and (2) a showing "that the degree of control of PM2.5 by the control technology selected in the PM10 BACT analysis will be at least as effective as the technology that would have been selected if a BACT analysis specific to PM2.5 had been considered." *Id*. at 45.

Although the EPA may sometimes allow use of the surrogate policy, this is dependent upon "a case-by-case evaluation of the use of PM10 in individual permits." *See* Letter from Stephen Johnson to Paul Cort, (Jan. 14, 2009) at 3.[10] This case-by-case analysis is also required by governing case law. *E.g.*, *National Lime Assoc. v. EPA*, 233 F.3d 625, 637 (D.C. Cir. 2000) (stating agency may substitute control of surrogate substance only where it shows (1) that regulated pollutant is invariably present in surrogate, (2) surrogate control technology indiscriminately captures regulated pollutant, and (3) surrogate control technology are only means by which regulated pollutant may be reduced); *Mossville Envtl. Action Now v. EPA*, 370 F.3d 1232, 1242-43 (requiring reasoned explanation of correlation between surrogate and regulated pollutant).

EPA must object to the Title V permits for failure to include PM2.5 limits and failure to provide an appropriate analysis on the pollutant.

IV. THE LIMIT FOR NATURAL GAS CONSUMPTION IS NOT BACT FOR GHG EMISSIONS FROM THE DRI FACILITY

In Step 4 of the BACT analysis for GHG emissions, the PSD Permit concludes that natural gas consumption is the most relevant parameter that can be measured and that the minimization of natural gas consumed by the process is the most effective means of reducing GHG generation. As an evaluation, the PSD Permit quotes verbatim the following paragraph from Nucor's GHG BACT Analysis:

[10] Available at http://www.epa.gov/nsr/documents/20090115cort.pdf.

> Historical rates of GHG emissions for the DRI process, measured using the unit metric of natural gas consumption per tonne of product has decreased over time as market forces have driven process efficiency. Early designs of the DRI process could be expected to meet an efficiency of 15 decatherms of natural gas per tonne of DRI produced. This efficiency metric has gradually fallen over several years, until the current-day state of the art is expected to require no more than 13 decatherms of natural gas per tonne DRI.[11]

Neither the Nucor's GHG BACT Analysis nor the PSD Permit contains any documentation for this statement.

Based on this discussion, the PSD Permit in Step 5 of the BACT analysis for GHG emissions determines a numerical limit for the consumption of natural gas and discusses compliance with this limit for the Reformer/Main Flue Gas Stack (DRI-108/208):

> Due to production rate and product quality variability in any production process, production rates should be inclusive of all production at the facility, both of regular and off-spec materials. Additionally, natural gas is consumed in the DRI process as both a raw material (for the formation of reducing gas) and as a fuel (for heating to reaction temperatures). All sources of natural gas consumption at the Reformer should be included in the analysis. BACT is no more than 13 decatherms of natural gas per tonne of DRI (11.79 MM Btu/ton of DRI). Compliance with the BACT limit shall be determined on the basis of total natural gas consumption, divided by total production (including regular and off-spec DRI product) of the facility on a 12-month rolling average.[12]

The Title V Permit implements this determination in the following condition for the Reformer/Main Flue Gas Stack in Train #1 of the DRI facility only (DRI-108):

> *Specific Requirement #81:*
> BACT is Natural [sic] gas <= 13 MMBTU per Tonne [sic] of Direct Reduced Iron (DRI) produced. Compliance with the BACT limit shall be determined on the basis of total natural gas consumption, divided by total production (including regular and off-spec DRI product). Which Months: All Year, Statistical Basis: Twelve-month rolling average (rolling 1-month basis)

[11] *Id*. at, p. 48, EDMS Document 7731649, p. 107 of 82.3

[12] PSD Permit for DRI Facility, PSD-LA-751, November 8, 2010, Preliminary Determination Summary, Section IV.A Best Available Control Technology, pp. 45-48, EDMS Document 7731649, pp. 104-107 of 823.

There are a number of problems with this BACT determination. First, the limit for natural gas consumption for DRI production determined by Nucor and the PSD is considerably higher than reported in the literature. Second, this limit is not supported by the values for natural gas consumption used by Nucor for calculation of criteria pollutant emissions from the DRI facility. Third, the PSD Permit incorrectly identifies this limit not for the entire facility but rather only for the Reformer/Main Flue Gas Stack (DRI 108) in Train #1 of the DRI facility. Fifth, the Title V Permit fails to state that this is a BACT limitation for GHG.

A. Lower Natural Gas Consumption for DRI Production Is Reported in the Literature.

As mentioned above, neither Nucor's GHG BACT Analysis nor the PSD Permit contain any documentation for the conclusion that a consumption of 13 decatherms of natural gas per tonne of DRI produced is BACT for GHG emissions from the DRI facility. Review of the literature shows that considerably lower values are reported for DRI processes for both other facilities and for DRI production processes. Table 2 below summarizes reported values for natural gas consumption as well as electricity consumption for specific DRI facilities in the U.S. and Australia and for several DRI production processes, including Midrex, HYL, and Finmet. (For comparison purposes, all reported values for natural gas consumption were converted to million British thermal units per tonne of DRI produced ("MMBtu/tonne DRI").)

Table 2: Reported values for natural gas consumption and electricity consumption for DRI facilities

	DRI Process	**Natural Gas Consumption** (calculated)[a]	**Electricity Consumption**
Facility-specific *(status)*			
Nucor DRI Facility, Convent, LA *(draft permits)* Capacity: 5.0×10^6 tonnes DRI/year	n/a	13 decatherms/tonne DRI[1] **13 MMBtu/tonne DRI**	n/a
Austeel Pty Ltd, Cape Preston, Australia	Midrex	55,280 TJ/year[2] (at capacity)	n/a

(permitted) Capacity: 5.6×10^6 tonnes DRI/year[b]		**(9.7 MMBtu/tonne DRI)**	
Essar Steel Minnesota, Nashwauk, MI *(under construction)* Capacity: 2.8×10^6 tonnes DRI/year	Midrex[c]	8-9 MMBTU/ton DRI[3] **(7.3-8.2 MMBtu/tonne DRI)**	n/a
Process-specific			
	HYL	2.25 to 2.3 Gcal/ton DRI[4] **(9.8-10.0 MMBtu/tonne DRI)**	**60 to 80 kWh/ton DRI**[4]
		10.7 million kJ/tonne DRI[5] **(10.1 MMBtu/tonne DRI)**	**90 kWh/tonne DRI**[2]
	Midrex	**10.30 MMBtu/tonne DRI**[2]	**130 kWh/tonne DRI**[2]
	HYL III[d]	**11.33 MMBtu/tonne DRI**[2]	n/a
	Finmet[e]	**11.55 MMBtu/tonne DRI**[2]	**150 kWh/tonne DRI**[2]

Notes:

n/a not available

a calculated using the following conversion factors: 1 Btu = 1.055 J (at 59 F); 1 Btu ≈ 252-253 cal (average 252.5 cal);
1 tonne = 1.1023 ton

b The facility produces DRI and hot briquetted iron ("HBI"), a compacted form of DRI designed for ease of shipping, handling, and storage; because there is no additional natural gas demand for the briquetting process of DRI, natural gas consumption figures for DRI and HBI are directly comparable

c Direct feed of DRI to electric arc furnace

d Proposed for use by Mineralogy Pty Ltd, Ausi Iron Project, Australia (capacity: 4×10^6 tonnes HBI/year)

e Proposed for use by BHP Billiton, Boodarie, Australia

Sources:

1 Draft PSD Permit for DRI Facility, PSD-LA-751, November 8, 2010, Preliminary Determination Summary, Section IV.A Best Available Control Technology, p. 48, EDMS Document 7731649, p. 104 of 823.

2 Mineralogy Pty Ltd., Iron Ore Mine and Downstream Processing, Cape Preston, Western Australia, Greenhouse Gas Management Plan, November 2006, p. 12, citing Feinman et al. 1999, Direct Reduced Iron, Technology and Economics of Production and Use, Chapter 14: Economics of Production and Use of DRI; available at http://www.citicpacificmining.com/resources/Greenhouse_Gas_Management_Plan.pdf.

3 J.J. Poveromo, Raw Materials & Ironmaking Global Consulting, A Report on the 82nd Annual Meeting – Minnesota Mining Symposium, Steel Times International, September 2009; available at http://www.steeltimesint.com/contentimages/features/Raw_Materials_Report.pdf.

4 InTech, Hot Iron, Iron Reduction Technology Keeps Plant Shutdown Safe, Trip Free, December 2008; available at http://snipurl.com/1r0hfi [www_google_com].

5 Manufacturer quote cited in: Government of India, Central Pollution Control Board, Ministry of Environment and Forests, Sponge Iron Industry, March 2007, Comprehensive Industry Documents Series COINDS /66/2006-07, p. 46; available at http://www.cpcb.nic.in/upload/NewItems/NewItem_102_SPONGE_IRON.pdf.

As shown in Table 2, the value of 13 decatherms (or MMBtu[13]) of natural gas consumed per tonne of DRI produced determined by Nucor and the PSD Permit as BACT is considerably higher than reported in the literature for other facilities and for the various DRI production processes which range from 7.3 to 11.55 MMBtu/tonne DRI produced.

The lowest value for natural gas consumption, 7.3-8.2 MMBtu/tonne DRI (8-9 MMBtu/ton DRI), was estimated for the Essar Minnesota Steel (formerly Minnesota Steel Industries, LLC) project at the former Butler Mine on the Mesabi iron ore range Minnesota. The facility is currently under construction and expected to be operational end of 2012.[14] The facility will be the first fully-integrated mine through steel-making facility in North America and will produce about 3.1 million tons (2.8 million tonnes) per year of DRI[15] (56 percent of the proposed Nucor DRI facility). The DRI process will use a Midrex shaft furnace and DRI product will be discharged directly to the electric arc furnace.[16] Clearly, the limit of 13 MMBtu/tonne DRI produced is not BACT for GHG emissions.

[13] 1 decatherm = 10 therms; 1 therm = 100,000 Btu.

[14] Steel Guru, First Concrete Poured at Essar Steel Minnesota, November 1, 2010; available at http://www.steelguru.com/international_news/First_concrete_poured_at_Essar_Steel_Minnesota_site/172890.html.

[15] Minnesota Department of Natural Resources, Minnesota Steel, Final Environmental Impact Statement, June 2007, p. EX-2; available at http://files.dnr.state.mn.us/input/environmentalreview/minnsteel/feis/feis_1.pdf.

[16] J.J. Poveromo, Raw Materials & Ironmaking Global Consulting, A Report on the 82nd Annual Meeting – Minnesota Mining Symposium, Steel Times International, September 2009; available at http://www.steeltimesint.com/contentimages/features/Raw_Materials_Report.pdf.

B. The Sum of Values for Natural Gas Consumption Used by the Nucor for Calculation of Criteria Pollutant Emissions from the DRI Facility Is Less Than Half the BACT Limit.

In the calculations of criteria pollutant emissions from the DRI facility, Nucor used the following maximum (average) firing rates:

Reformer/Main Flue Gas Stack (DRI-108/208):	1,597 (1,521) MMBtu/hour
Package Boiler (DRI 109/209):	290 (220) MMBtu/hour
Hot Flare (DRI-110/210) pilot:	160 (149) scf/hour

Based on the maximum annual hours of operation for the Reformer/Main Flue Gas Stack (DRI-108/208) and the Package Boiler (DRI 109/209) (8,000 hours/year) and the Hot Flare pilot (8,760 hours/year) and a higher heating value for natural gas of 1,020 British thermal units per standard cubic foot ("MMBtu/scf"),[17] the annual natural gas consumption on a per-unit-basis can be estimated as follows:

Reformer/Main Flue Gas Stack (DRI-108/208):	1.28×10^7 (1.22×10^7) MMBtu/year[18]
Package Boiler (DRI 109/209):	2.32×10^6 (1.76×10^6) MMBtu/year[19]
Hot Flare (DRI-110/210) pilot:	1.46×10^3 (1.33×10^3) MMBtu/year[20]

Therefore, total annual natural gas consumption for both trains of the DRI facility can be estimated at 3.02×10^7 MMBtu/year (2.79×10^7 MMBtu/year).[21] Based on the maximum annual

[17] Letter from Timothy M. Desselles and Matthew J. Skific, Environmental Resources Management, to Cheryl Nolan, Lousiana Department of Environmental Quality, Re: Addendum to Initial Part 70 Permit Application, Consolidated Environmental Management, Inc., Nucor Steel Louisiana – Direct Reduced Iron Facility, October 22, 2010, EDMS Document 7712779.

[18] Maximum: (1,597 MMBtu/hour)(8,000 hours/year) = 1.28×10^7 MMBtu/year per reformer; Average: (1,521 MMBtu/hour)(8,000 hours/year) = 1.22×10^7 MMBtu/year per reformer.

[19] Maximum: (290 MMBtu/hour)(8,000 hours/year) = 2.32×10^6 MMBtu/year per package boiler; Average: (220 MMBtu/hour)(8,000 hours/year) = 1.76×10^6 MMBtu/year per package boiler.

[20] Maximum: (163 scf/hour)(1,020 Btu/scf)(MMBtu/10^6 Btu)(8,760 hours/year) = 1.46×10^3 MMBtu/year per hot flare pilot;
Average: (220 MMBtu/hour)(1,020 Btu/scf)(MMBtu/10^6 Btu)(8,760 hours/year) = 1.33×10^3 MMBtu/year per hot flare pilot.

production of 5.0 million tons of DRI per year for both trains of the DRI facility, natural gas consumption on a per unit basis can be estimated at 6.0 (5.6) MMBtu/tonne of DRI,[22] less than half the value of 13 MMBtu/tonne DRI determined to be BACT by Nucor and the PSD Permit. Thus, unless there are other major natural gas-consuming processes that the permits did not disclose, BACT for natural gas consumption as a parameter for GHG emissions for the facility is 6.0 MMBtu/tonne of DRI.

Note that LDEQ argues that Petitioners' estimates of CO2 emissions for the reformer/main flue gas, package boiler and flare did not account for the generation of reducing gas; however, LDEQ fails to provide an estimate of how much reducing gas is required to determine the total natural gas consumption. Thus, the GHG BACT limit of 13 MMBtu of natural gas consumed per tonne DRI produced remains unsupported.

Information from MIDREX indicates a typical natural gas consumption of 9.3 MMBtu/tonne DRI (2.53 Gcal/tonne DRI) at a 93% metallization and a 2.0% carbon content for the traditional MIDREX reformer. Estimating natural gas consumption at the high end of the range of metallization and carbon content results in 10.1 MMBtu/tonne DRI with 96% metallization and 10.6 MMBtu/tonne DRI with a carbon content of 2.5% carbon content. These values are on the same order of magnitude as those discussed in Petitioners' comments and far below the natural gas consumption of 13 MMBtu per tonne DRI with unspecified metallization and carbon content.

---

[21] Maximum: $[(1.28\times10^7$ MMBtu/year per reformer)+(2.32×10^6 MMBtu/year per package boiler)+
$(1.46\times10^2$ MMBtu/year per hot flare pilot)](2) = 3.02×10^7 MMBtu/year;
Average: $[(1.22\times10^7$ MMBtu/year per reformer)+(1.76×10^6 MMBtu/year per package boiler)+
$(1.33\times10^2$ MMBtu/year per hot flare pilot)](2) = 2.79×10^7 MMBtu/year.

[22] Maximum: $(3.02\times10^7$ MMBtu/year)/$(5.0\times10^6$ tonne DRI/year) = 6.0 MMBtu/tonne DRI;
Average: $(2.79\times10^7$ MMBtu/year)/$(5.0\times10^6$ tonne DRI/year) = 5.6 MMBtu/tonne DRI.

In other words: the 13 MMBtu/tonne DRI seems to be a guess rather than a number that is supported by any calculations. LDEQ must provide product and raw material specifications backed by vendor information and demonstrate how it derived the 13 MMBtu/tonne DRI natural gas consumption figure.

V. THE PERMITS MUST SPECIFY PROCEDURES FOR ESTIMATING GREENHOUSE GASES.

The PSD permit must clearly specify the procedure for making the mass balance calculation for carbon in the DRI production process.[23] Specific Requirement #82, which requires calculating DRI production rates and natural gas consumption "using both the fuel consumption tracking method of Subpart C, as well as Subpart Q for iron and steelmaking from the promulgated Mandatory Reporting of Greenhouse Gas rule" is not adequate.[24]

Subpart Q for iron and steelmaking from the promulgated Mandatory Reporting of Greenhouse Gas rule does not provide a calculation procedure for DRI production and the reference is therefore moot. Therefore, EPA must require LDEQ to develop a calculation procedure for DRI production and present it for public review.

This calculation procedure must account for the fact that the carbon content and heating values of pipeline-grade natural gas can show considerable variation over space and time, as shown in Figure 1.

[23] EPA's Review of Proposed Title V Permits for Florida Power & Light, December 11, 1997, Enclosure 3, p. 2 ("In order to constitute a practically enforceable requirement, this condition must be revised to clearly specify the procedures for calculating the sulfur content of the oil on a 12-month basis.").

[24] Part 70 Air Operating Permit for DRI Facility, Specific Requirements #81 and #82, pp. 8-9 of 29, EDMS Document 7731649, pp. 37-38 of 823.

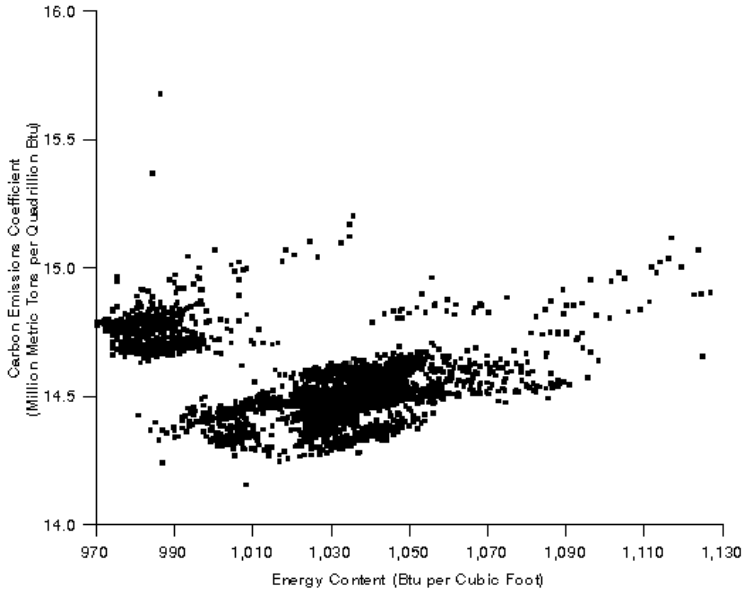


Figure 1: Carbon emissions coefficient vs. energy content in U.S. pipeline-grade natural gas
Source: Energy Information Administration, Emissions of Greenhouse Gases in the United States 1987-2002, Figure A-1; available at http://www.eia.doe.gov/oiaf/1605/archive/87-92rpt/appa.html#figure_a1.

The U.S. Department of Energy ("DoE") reports CO_2 fuel efficiency coefficients for pipeline natural gas ranging from 54.01 kg CO_2/MMBtu (5.401 kg CO_2/therm) at a higher heating value ("HHV") of 975-1,000 BTU per cubic foot ("Btu/scf") of natural gas to 53.72 kg CO_2/MMBtu (5.372 kg CO_2/therm) at an HHV of 1,075-1,100 Btu/scf.[25] Given this variability in fuel composition, facility-specific values for carbon content and heating value should be used to determine GHG emissions from natural gas combustion wherever possible. This information should be available from suppliers or Material Data Safety Sheets for the purchased fuel and should be confirmed with fuel analysis results.

Note that LDEQ's response to this comment does not lay out a procedure for estimating GHG emissions, but rather only clarifies which processes, products, and combustion sources account

[25] U.S. Department of Energy, Voluntary Reporting of Greenhouse Gases Program, Fuel Emission Coefficients; available at http://www.eia.doe.gov/oiaf/1605/coefficients.html.

for the natural gas consumption. Further, LDEQ's response does not specify the CO2 fuel efficiency coefficient for the pipeline natural gas as discussed in Petitioners' comments.

CONCLUSION

For these reasons, the Administrator should object to the permits within 60 days upon receipt of this petition, as required by § 505 of the Act, because they violate the applicable requirements of the Act and the Louisiana implementation plan. 42 U.S.C. § 7661d(b)(2). The Administrator should revoke the permits upon her objection. 42 U.S.C. § 7661d(b)(3).

Respectfully submitted on May 3, 2011 by,

Corinne Van Dalen, Supervising Attorney
Tulane Environmental Law Clinic
6329 Freret Street
New Orleans, Louisiana 70118
Phone (504) 865-8814
Fax (504) 862-8721
On behalf of Louisiana Environmental Action Network and Sierra Club

Substantially prepared by:
Brandon Sousa, Law Student
Tulane Environmental Law Clinic

Cc:

Lisa P. Jackson, Administrator
U.S. EPA Headquarters
Ariel Rios Bldg.
Mail Code 1101A
1200 Penn. Ave., NW
Washington, D.C. 20460

Dr. Alfredo Armendariz
Regional Administrator, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202
(214) 665-6444

Peggy Hatch, Secretary
Louisiana Department of Environmental Quality
602 N. Fifth Street
Baton Rouge, LA 70802

Mr. R. Joseph Stratman
Vice President Nucor
1915 Rexford Rd
Charlotte, NC 28211