

**BEFORE THE ADMINISTRATOR**  
**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

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In the Matter of the Final Operating Permit for

CONSOLIDATED ENVIRONMENTAL  
MANAGEMENT, INC. - NUCOR STEEL,  
LOUISIANA  
to operate a Pig Iron manufacturing facility  
located in Convent, St. James Parish, Louisiana

**Permit Number 2560-00281-V0  
and PSD-LA-740**

Issued by the Louisiana Department of  
Environmental Quality

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PETITION REQUESTING THAT THE ADMINISTRATOR OBJECT TO ISSUANCE  
OF THE PART 70 OPERATING PERMIT FOR THE NUCOR STEEL – LOUISIANA  
FACILITY

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On Behalf of:  
Zen-Noh Grain Corporation

Date: June 25, 2010

Pursuant to the Clean Air Act (“CAA” or “Act”) § 505(b)(2) and 40 C.F.R. § 70.8(d), Zen-Noh Grain Corporation (“Zen-Noh”) hereby petitions the Administrator of the United States Environmental Protection Agency (“EPA”) requesting objection to Part 70 operating permit No. 2560-00281-V0 (EDMS Doc. 47486265, the “Part 70 Permit”) issued to Consolidated Environmental Management, Inc. – Nucor Steel Louisiana (“Nucor”) by the Louisiana Department of Environmental Quality (“LDEQ”) in conjunction with the Pig Iron manufacturing facility which is to be located near Convent, St. James Parish, Louisiana and is expected to begin operation in 2012 (the “Facility”). This petition is filed within 60 days following the end of EPA’s 45-day review period pursuant to the above provisions. Furthermore, Zen-Noh reserved their ability to raise these issues by submitting comments during the public comment period for the Permit, *see Attachment 1*, and otherwise rely on public comments submitted by other parties as noted below.<sup>1</sup>

Section 502 of the Act makes it unlawful for anyone to operate a facility such as Nucor’s Facility without a permit issued under Part 70.<sup>2</sup> The Act 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

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<sup>1</sup> Zen-Noh presented oral comments during a public hearing conducted in Convent, Louisiana on April 15, 2010 (EDMS Doc. 47080914). Zen-Noh submitted written comments to LDEQ on April 19, 2010 (EDMS Doc. 46989377, the “April 2010 Comments”). Zen-Noh submitted additional written comments to LDEQ on May 3, 2010 (EDMS Doc. 47208062, the “May 2010 Comments”). The April 2010 Comments and May 2010 Comments incorporate by reference several other sets of comments previously submitted by Zen-Noh and others, including the EPA and the Louisiana Environmental Legal Action Network (EDMS Docs. 38792291, 38731555, 38726664, 38687913, 38694489, 38822542, 38593694, 43539458, 42960055, 40636005, 40287739, 39562919, 38726996, 39219904, 38957883, and 46955530). All of these previous comments are incorporate herein by reference.

<sup>2</sup> 42 U.S.C. §7661a.

its issuance.”<sup>3</sup> If the Administrator does not object within 45 days after a permit has been proposed, any person may petition the Administrator (within 60 days of the expiration of the 45-day period) to take such action and the Administrator “shall issue an objection within such period if the petitioner demonstrated to the Administrator that the permit is not in compliance with the requirements of this chapter, including the requirements of the applicable implementation plan.”<sup>4</sup>

The Administrator must object because the Part 70 Permit fails to comply with the CAA in many respects. First, Nucor has not included, and LDEQ has not required, adequate technical documentation supporting the Best Available Control Technology (BACT) determinations, emission calculations, and air quality impact analyses in the Permit, in violation of the Prevention of Significant Deterioration (“PSD”) portion of the CAA and the Louisiana State Implementation Plan (“SIP”), promulgated by LDEQ.<sup>5</sup> Second, the Permit does not include appropriate and necessary BACT for coke oven emissions, including during Heat Recovery Steam Generating (“HRSG”) unit bypass events and Flue Gas Desulfurization (“FGD”) absorber bypass events, nor does it include appropriate and necessary BACT for emissions during coke oven charging and pushing, or for sulfuric acid mist emissions, H<sub>2</sub>S, or dioxin emissions, among others. Third, Nucor did not perform, and LDEQ did not require, preconstruction monitoring for PM<sub>10</sub>, SO<sub>2</sub>, H<sub>2</sub>S, TRS, and sulfuric acid mist. Fourth, LDEQ did not require Nucor to correct its improper and inadequate modeling. Fifth, LDEQ did not provide the required opportunity for public participation in the decision-making process.

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<sup>3</sup> 42 U.S.C. § 7661d(b)(1)

<sup>4</sup> 42 U.S.C. § 7661d(b)(2).

<sup>5</sup> La. Admin. Code tit. 33, pt. III, § 509.

Zen-Noh adopts and incorporates by reference, as if fully set forth herein, the comments, facts, and arguments set forth in the Petitions for EPA Objection filed by Sierra Club and LEAN on June 25, 2010 (the “Sierra Club Petition”), as well as all of the supporting materials attached thereto or incorporated therein by reference.

## **I. INTRODUCTION**

LDEQ issued a final PSD Permit, No. PSD-LA-740 (EDMS Doc. 47485697, the “PSD Permit”) to Nucor on or about May 24, 2010. The PSD Permit authorizes Nucor to construct the Facility, pursuant to LDEQ’s authority under LAC 33:III.509. LDEQ concurrently issued the Part 70 Permit to Nucor.

Zen-Noh is a Louisiana corporation that operates a grain export facility near Convent, St. James Parish, Louisiana. Zen-Noh’s St. James Parish elevator is the fastest loading grain elevator in North America and the largest and most efficient grain export elevator in the world, annually shipping in excess of 12,000,000 tons of American grain overseas. Zen-Noh provides food and animal feed to people around the world. The Facility will be located directly adjacent to Zen-Noh’s grain facility.

Emission units at the Facility will include coke ovens arranged in two coke oven batteries, a blast furnace, a sinter plant, slag handling, iron desulfurization, mass storage piles and handling operations, conveyors, ship and barge loading and unloading, and miles of paved and unpaved roads. The Facility will emit over 38,440 tons per year of pollutants that are regulated New Source Review (“NSR”) pollutants under the CAA,<sup>6</sup> and the SIP.<sup>7</sup> The Facility will also emit over 106 tons per year of pollutants that have

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<sup>6</sup> 42 U.S.C. § 7401, *et seq.*

<sup>7</sup> See Part 70 Permit. Regulated NSR pollutants that will be emitted by the Facility include: particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile

been identified as hazardous air pollutants (“HAP”) or toxic air pollutants (“TAP”) in the CAA or SIP.<sup>8</sup>

On or about March 11, 2010, LDEQ issued for public review and comment a document relating to the Nucor Permits (EDMS Doc. 46145820, the “Public Hearing Packet”). The Public Hearing Packet stated that the deadline for submitting written comments would be April 19, 2010. Zen-Noh and others requested additional time to submit comments. LDEQ granted the requests and extended the deadline for submitting written comments to May 3, 2010. The Public Hearing Packet identifies the documents available for the public to review and comment on relating to the Nucor Permits. Specifically, the Public Hearing Packet identifies the five volume application, EDMS Docs. 42940592, 42946044, 42947172, 4948020, and 42948940 (collectively, the “Application”), and supplemental information submitted by Nucor, EDMS Docs. 44711802, 45715426, 45715362, and 45979995 (collectively, the “Supplement”).<sup>9</sup> The Application was dated June 2009 by Nucor and was posted on EDMS with a date of September 2, 2009.

When LDEQ issued the Nucor Permits, LDEQ also issued a document (EDMS Doc. 47485821) describing the bases for LDEQ’s decision to issue the Nucor Permits

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organic compounds (VOC), lead, sulfuric acid mist, hydrogen sulfide, total reduced sulfur (TRS), and dioxins.

<sup>8</sup> *Id.*

<sup>9</sup> The Public Hearing Packet contains, in order, documents titled “Public Notice,” “Part 70 Operating Permit,” “Air Permit Briefing Sheet,” “Prevention of Significant Deterioration Permit, PSD-LA-740,” “Briefing Sheet,” “Preliminary Determination Summary,” “Specific Conditions,” “BACT Cost Summary,” “Air Quality Analysis Summary,” “Statement of Basis,” “General Information,” “Inventories,” “Emission Rates for Criteria Pollutants,” “Emission Rates for TAP/HAP & Other Pollutants,” “Specific Requirements,” “Worksheet for Technical Review of Working Draft of Proposed Permit,” and “Public Hearing and Request for Public Comment on Proposed Initial Part 70 Air Operating Permit and Prevention of Significant Deterioration Permit & Associated Environmental Assessment Statement.”

(the “Basis for Decision”) and a 412-page document summarizing LDEQ’s responses to the public’s comments opposing issuance of the Nucor Permits (“Response to Comments” or “RTC”). According to LDEQ, pages 46-169 in the Public Hearing Packet constitute the “proposed PSD permit” for public review and comment.<sup>10</sup> According to LDEQ, pages 5-45 in the Public Hearing Packet and pages 219-346 in the Public Hearing Packet, constitute the “proposed Part 70 permit.”<sup>11</sup> The “Public Notice,” pages 1-5, “Statement of Basis,” pages 170-218, and “Worksheet for Technical Review of Working Draft of Proposed Permit,” and “Public Hearing and Request for Public Comment on Proposed Initial Part 70 Air Operating Permit and Prevention of Significant Deterioration Permit & Associated Environmental Assessment Statement,” pages 347-354 in the Public Hearing Packet, are not part of either the proposed PSD permit or proposed Part 70 permit.

## **II. EPA OBJECTION TO PART 70 PERMITS**

In reviewing a petition regarding a Part 70 permit, the Administrator must object where petitioners “demonstrate” that the permit “is not in compliance with the requirements of [the Clean Air Act], including the requirements of the applicable implementation plan.”<sup>12</sup> The Administrator explains in an August 2009 Order on a similar petition that the EPA will “generally look to see whether the Petitioner has shown that the state did not comply with its SIP-approved regulations governing PSD permitting

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<sup>10</sup> This includes the “Prevention of Significant Deterioration Permit, PSD-LA-740,” “Briefing Sheet,” “Preliminary Determination Summary,” “Specific Conditions,” “BACT Cost Summary,” and “Air Quality Analysis Summary.” *See* RTC 349.

<sup>11</sup> This includes the “Part 70 Operating Permit,” “Air Permit Briefing Sheet,” “General Information,” “Inventories,” “Emission Rates for Criteria Pollutants,” “Emission Rates for TAP/HAP & Other Pollutants,” and “Specific Requirements.” *Id.*

<sup>12</sup> 42 U.S.C. § 7661d(b)(2).

or whether the state's exercise of discretion under such regulations was unreasonable or arbitrary.”<sup>13</sup> 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.”<sup>14</sup>

To guide her review, the Administrator has looked to the standard of review applied by the Environmental Appeals Board (“EAB”) in making parallel determinations under the federal PSD permit program.<sup>15</sup> The EAB recently has reiterated the importance of BACT determinations, stating that they are “one of the most critical elements in the PSD permitting process and thus ‘should be well documented in the record, and any decision to eliminate a control option should be adequately explained and justified.’”<sup>16</sup> The Board has remanded permits where the permitting authority's BACT analyses were “incomplete or the rationale was unclear.”<sup>17</sup> Thus, the Administrator should review LDEQ's BACT determinations with an eye to the completeness of the record and underlying rationale.

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<sup>13</sup> 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)).

<sup>14</sup> *Trimble* at 5 (citing 68 Fed. Reg. 9,892 (March 3, 2003) and 63 Fed. Reg. 13,795 (March 23, 1998)).

<sup>15</sup> *Trimble* at 5 n.6. Zen-Noh notes that it disagrees with the importation of the EAB's clearly erroneous standard into the Title V process. A “preponderance of the evidence” standard is more appropriate for reviewing state agency Title V determinations, due to, among other things, the centrality of EPA's oversight function in Title V.

<sup>16</sup> Desert Rock Energy Company, LLC, 14 E.A.D. PSD Appeal Nos. 08-03, 08-04, 08-05, & 08-06, at 50 (EAB Sept. 24, 2009).

<sup>17</sup> *Id.*

In this petition, Zen-Noh demonstrates that the BACT analyses are both incomplete and unclear; thus, the Administrator *must* object to the Part 70 Permit. Similarly, considering the centrality of pre-construction monitoring and public participation requirements to making proper PSD determinations, LDEQ's failure to ensure that each of these requirements were met provides two additional, independent reasons for EPA to object to the Part 70 Permit. Since LDEQ has issued the permit, "the Administrator shall modify, terminate, or revoke such permit" upon its objection.<sup>18</sup>

### **III. BACT Determinations are Unsupported and Inadequate Under PSD and the SIP**

Nucor's Permits violate the CAA and the SIP because there are a number of serious deficiencies with the BACT determinations that were included in the PSD Permit, and there are a number of instances in which LDEQ has completely failed to require Nucor to demonstrate BACT for major sources of regulated NSR pollutants. LDEQ repeatedly failed to conduct proper top-down BACT analyses in the Permits, including 1) basing its BACT decisions on factors that are not authorized under PSD and the SIP, and not supported by the evidence; 2) failing to provide reasoned bases supported by evidence for its BACT decisions; and 3) failing to provide reasoned and individualized responses supported by the evidence to comments regarding BACT, or the lack thereof, for particular emission sources. As a result, the Permits LDEQ issued to Nucor do not actually apply or impose BACT for major sources of regulated NSR pollutants.

Section 165(a)(4) of the CAA provides that a new major source of air pollution proposed to be constructed in an area that is in attainment with all national ambient air quality standards, such as Nucor, is subject to PSD permitting requirements. These

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<sup>18</sup> 42 U.S.C. § 7661d(b)(3).



requirements are incorporated into Louisiana regulations at LAC 33:III.509. One of the principle requirements of the PSD regulations is that the major source must install and operate best available control technology or BACT for each pollutant subject to regulation under the Act.<sup>19</sup> The requirements for conducting a BACT analysis are codified in the definition of BACT:

*Best Available Control Technology (BACT)—*

a. an emissions limitation, including a visible emission standard, based on the maximum degree of reduction for each pollutant subject to regulation under this Section that would be emitted from any proposed major stationary source or major modification that the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant;

b. in no event shall application of *best available control technology* result in emissions of any pollutant that would exceed the emissions allowed by an applicable standard under 40 CFR Parts 60 and 61. If the administrative authority determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of *best available control technology*. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means that achieve equivalent results.<sup>20</sup>

To ensure that the BACT determination is “reasonably moored” to the CAA’s statutory requirements,<sup>21</sup> this definition is generally implemented by following the top-down BACT process as set out in the NSR Manual,<sup>22</sup> a guidance document issued by

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<sup>19</sup> 42 U.S.C. § 7475(a)(4); LAC 33:III.509.B.

<sup>20</sup> LAC 33:III.509.B.

<sup>21</sup> *Alaska Dept. of Env’t’l Conservation v. EPA*, 540 U.S. 461, 485 (2004).

<sup>22</sup> U.S. EPA, New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting, Draft, October 1990.

EPA's Office of Air Quality Planning and Standards in 1990. The NSR Manual's approach is structured to take into account all of the elements in the regulatory definition of BACT.<sup>23</sup> Though not binding regulation, this process has been used by state and federal permitting authorities for many years.<sup>24</sup> Both Nucor<sup>25</sup> and the LDEQ selected the top-down BACT process as set out in this guidance, the NSR Manual, to determine BACT.<sup>26</sup> No other process is identified or advocated by any party. The LDEQ's BACT analysis is contained in the Preliminary Determination Summary ("PDS").<sup>27</sup> The top-down BACT process consists of five-steps:

- STEP 1: Identify all control technologies. This list must be comprehensive and include all "Lowest Achievable Emission Rates" ("LAER")
- STEP 2: Eliminate technically infeasible options. A demonstration of technical infeasibility should be clearly documented and must show, based on physical, chemical, and engineering principles, that technical difficulties would preclude the successful use of the control option on the emissions unit under review.
- STEP 3: Rank remaining control technologies by control effectiveness. This must include:
  - control effectiveness (percent pollutant removed);
  - expected emission rate (tons per year);
  - expected emission reduction (tons per year);
  - energy impacts (Btu/kWh);
  - environmental impacts (other media and the emissions of toxic and hazardous air emissions); and
  - economic impacts (total cost effectiveness, incremental cost effectiveness)

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<sup>23</sup> Knauf Fiber Glass, GmbH, 8 E.A.D., 121, 129 (EAB 1999).

<sup>24</sup> See Northern Michigan University Ripley Heating Plant, 14 E.A.D. PSD Appeal No. 08-02, at 11–16 (EAB Feb. 18, 2010).

<sup>25</sup> ERM, Nucor Steel Louisiana, Part 70 Initial Permit and Authorization to Construct and PSD Permit Application, June 2009, EDMS 42946044 ("6/09 Application"), § 3.0.

<sup>26</sup> 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 also RTC at 96, 99, 101, 104, 114, 115, 118, 119 (same language).

<sup>27</sup> See RTC 65, 96, 99, 101, 104, 114, 115, 118, 120.

- STEP 4: Evaluate most effective controls and document results. This must include a case-by-case consideration of energy, environmental, and economic impacts. If top option is not selected as BACT, evaluate next most effective control option.
- STEP 5: Select most effective option not rejected as BACT.<sup>28</sup>

The following sections discuss the BACT determinations that are legally deficient because they do not satisfy the definition of BACT.

#### **A. The BACT Determinations Are Unsupported**

Numerous previous comments pointed out that the BACT analyses were not supported. These include comments submitted by the EPA<sup>29</sup> and Zen-Noh.<sup>30</sup> The LDEQ does not provide the missing information sought in these comments. Rather, it either does not reply at all or makes excuses that are irrelevant. The net result is a large number of unsupported BACT determinations.

The EPA, in comments filed December 1, 2008, noted: “EPA is concerned that the applicant’s Best Available Control Technology (BACT) determination did not

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<sup>28</sup> NSR Manual, Table B-1.

<sup>29</sup> *E.g.*, Comments 142 (“EPA is concerned that the applicant’s Best Available Control Technology (BACT) determination did not provide enough information for EPA to evaluate the technical feasibility/infeasibility of the selected control methods. EPA requires that LDEQ provide a more detailed analysis of the applicant’s BACT determination”), 146 (“Based upon the information provided in the PSD application, it is difficult to verify the BACT Determination provided in the Preliminary Determination Summary, specifically, the technical feasibility/infeasibility of add-on control for each emissions unit/pollutant evaluated...”).

<sup>30</sup> *E.g.*, Comments 156 (“There is currently no way to evaluate the proposed technology against the existing MACT standard,” which was selected as BACT.”), 161 (“[T]he add-on control equipment common to all other non-recovery coke facilities . . . was dismissed without sufficient justification.”), 162 (“The Nucor BACT determination fails to provide sufficient detail on the control efficiencies, expected emission rates, expected emission reductions, cost effectiveness or other control effectiveness to reliably evaluate the control technologies. No technical information is provided for the compacted coal. The evaluation sections for negative oven pressure and compacted coal state that ‘assigning a specific control efficiency . . . is problematic’ but they ‘have the potential to be more environmentally effective than add-on controls.’ These are the details that the BACT analysis is required to provide and use in justifying the selected control technologies . . . . Based on our review none of this has been done sufficiently.”), 165 (“However, no analysis was performed (other than a single statement, relying on the term inherently lower-polluting process) . . . .”). *See also* comments 66, 67, 68, 69, 70, 71, 75, 76, 85, 148, 263.D, 263.F, 263.K, 263.G, 266.E. The commenters are referred to collectively herein as “Petitioners” or identified individually, where appropriate.

provide enough information for EPA to evaluate the technical feasibility/infeasibility of the selected control methods. EPA requires that LDEQ provide a more detailed analysis of the applicant's BACT determination."<sup>31</sup> Elsewhere, EPA notes: "Based upon the information provided in the PSD application, it is difficult to verify the BACT Determination provided in the Preliminary Determination Summary, specifically, the technical feasibility/infeasibility of add-on control for each emissions unit/pollutant evaluated . . . ."<sup>32</sup> Although similar comments, in much greater detail, were made by others from September 2008 through May 2010, these deficiencies were never cured. The LDEQ's BACT analysis has not been modified to point to any additional information.

Rather than supplying additional information, LDEQ makes excuses for not providing responsive information. First, LDEQ claims that EPA "did not cite a specific emissions unit or technology."<sup>33</sup> Second, it cites to the NSR Manual for authority that its role is limited to "review[ing] the background search and resulting list of control alternatives presented by the applicant to check that it is complete and comprehensive."<sup>34</sup> Third, LDEQ claims the requested design information does not exist, even though the existence of this information is central to support claims that one technology is superior to another.<sup>35</sup> Fourth, LDEQ justifies not evaluating many widely used methods because

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<sup>31</sup> Comment 142.

<sup>32</sup> Comment 146.

<sup>33</sup> RTC 146.

<sup>34</sup> *Id.*

<sup>35</sup> RTC 67, 70, 75, 76, 79, 98, 101, 104, 108.

it claims it selected an “inherently lower-polluting process.”<sup>36</sup> Fifth, LDEQ argues the information is not required to make a BACT determination.<sup>37</sup> These arguments are simply justifications for LDEQ’s failure to provide the necessary support for the BACT determination. They will each be addressed in turn.

#### **B. LDEQ Already Knew What Documentation Was Lacking**

The excuse that EPA failed to identify with specificity what was missing does not withstand scrutiny. LDEQ was already on notice as to what was missing, as Zen-Noh had previously identified with specificity key missing information. On November 24, 2008, Petitioners commented that “technical support” was lacking for the BACT determination for many specific units and pollutants including:

- the PM10 BACT determinations for the blast furnace and hot blast stoves;<sup>38</sup>
- rejection of SCR as technically infeasible for the hot blast stoves;<sup>39</sup>
- rejection of EMx as technically infeasible for control of NOx from the hot blast stoves;<sup>40</sup>
- selection of low NOx fuel combustion as BACT for NOx from the hot blast stoves;<sup>41</sup>

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<sup>36</sup> RTC 163, 165, 191, 220, 263.D, 264.G.

<sup>37</sup> *E.g.*, RTC 263.G..

<sup>38</sup> Comments 66 (“LDEQ should provide technical support for its determination, including engineering calculations and literature, or should evaluate the control efficiency and cost-effectiveness of fabric filters as BACT for the control of PM10 from the hot blast stove.”) and 67 (“LDEQ and Nucor did not demonstrate with sufficient technical supporting documentation including design parameters, engineering drawings and calculations, engineering literature, and vendor literature and performance warranties, that a cyclone-wet scrubber combination is BACT for the control of PM10 emissions from the hot blast stoves.”).

<sup>39</sup> Comment 68 (“LDEQ and Nucor did not provide any technical documentation supporting this statement [that SCR was technically infeasible for the control of NOx]”).

<sup>40</sup> Comment 68 (“LDEQ and Nucor did not provide any technical documentation supporting this statement [that EMx was technically infeasible for the control of NOx]”).

<sup>41</sup> Comment 70 (“LDEQ and Nucor did not demonstrate with sufficient technical supporting documentation, including design parameters, engineering drawings and calculations, engineering literature, and vendor literature and performance warranties, that low NOx fuel combustion is BACT for the control of NOx emissions from the hot blast stoves.”).

- rejection of EMx as technically infeasible for the control of CO and VOCs from the hot blast stoves;<sup>42</sup>
- rejection of SCR as technically infeasible for NOx emissions from the coke ovens;<sup>43</sup>
- rejection of a higher SO2 control efficiency for SO2 emissions from coke ovens;<sup>44</sup>
- selection of the cyclone-wet scrubber combination as BACT for control of PM10 emissions from topgas-fired boilers;<sup>45</sup>
- rejection of SCR as technically infeasible for NOx emissions from the topgas-fired boilers;<sup>46</sup>
- rejection of EMx technology as technically infeasible for NOx emissions from the topgas-fired boilers;<sup>47</sup>
- selection of low NOx fuel combustion or an emission rate of 0.092 lb/MMBTU is BACT for the control of NOx emissions from the topgas-fired boilers.”<sup>48</sup>

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<sup>42</sup> Comment 71 (“LDEQ and Nucor did not provide any technical documentation supporting this statement [that EMx was technically infeasible for the control of CO and VOCs]”).

<sup>43</sup> Comment 85 (“Nucor did not demonstrate with sufficient technical supporting documentation, including design parameters, engineering drawings and calculations, engineering literature, and vendor literature and performance warranties, that SCR is technically infeasible or cost prohibitive for the control of NOx emissions from the coke ovens . . . .”)

<sup>44</sup> Comment 85 (“LDEQ and Nucor did not demonstrate with sufficient technical supporting documentation, including design parameters, engineering drawings and calculations, engineering literature, and vendor literature and performance warranties, that the coke batter FGD units cannot reliably achieve an SO2 control efficiency of 92%, or at least 91%...”).

<sup>45</sup> Comment 101 (“LDEQ and Nucor did not demonstrate with sufficient technical supporting documentation, including design parameters, engineering drawings and calculations, engineering literature, and vendor literature and performance warranties, that a cyclone-wet scrubber combination is BACT for the control of PM10 emissions from the topgas-fired boilers.”)

<sup>46</sup> Comment 102 (“LDEQ and Nucor did not provide any technical documentation supporting this statement . . . LDEQ should provide technical support for its determination, including engineering calculations and literature, or should evaluate the control efficiency and cost-effectiveness calculations and literature, or should evaluate the control efficiency and cost-effectiveness of SCR as BACT for the control of NOx from the topgas-fired boilers.”)

<sup>47</sup> Comment 103 (“LDEQ and Nucor did not provide any technical documentation supporting this statement, which appears to have been cut-and-pasted from the BACT determination for the hot blast stoves, and thus has no relevance to the applicability of EMx for the topgas-fired boilers.”). *See also* Comment 105.

<sup>48</sup> Comment 104 (“LDEQ and Nucor did not demonstrate with sufficient technical supporting documentation, including design parameters, engineering drawings and calculations, engineering literature, and vendor literature and performance warranties, that low NOx fuel combustion or an emission rate of 0.092 lb/MMBTU is BACT for the control of NOx emissions from the topgas-fired boilers.”).

- determination that fabric filters could achieve a BACT emission limit of 0.005 gr/dscf for PM10 emission from the sintering process.<sup>49</sup>
- BACT emission limits of CO and SO2 from the cast house baghouse vents.<sup>50</sup>
- BACT emission limit for PM10 emissions from the pig iron desulfurization station baghouse vent.<sup>51</sup>
- BACT emission limit for PM emissions from the pig iron solidification baghouse vent.<sup>52</sup>

LDEQ never supplied the information that the Petitioners sought. Instead, in response to these and other comments, LDEQ pointed to the information that the Petitioners had already concluded was inadequate.<sup>53</sup> The arguments set forth by LDEQ to justify its failure to require adequate supporting documentation are incorrect as a matter of law and are internally self-contradictory.

### **C. LDEQ Did Not Meet Its BACT Burden**

Petitioners made three key points that demonstrate that LDEQ's BACT determinations are not supported in the record. First, the EPA noted that "it is difficult to verify the BACT Determination provided in the Preliminary Determination Summary, specifically, the technical feasibility/infeasibility of add-on controls for each emissions unit/pollutant evaluated."<sup>54</sup> Petitioners also noted that LDEQ had admitted that it made

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<sup>49</sup> Comment 108 ("LDEQ and Nucor did not demonstrate with sufficient technical supporting documentation, including design parameters, engineering drawings and calculations, engineering literature, and vendor literature and performance warranties, that the fabric filter proposed by Nucor will achieve the BACT emission limit of <+ 0.005 gr/dscf.").

<sup>50</sup> Comment 279 ("The record contains no support for the following BACT emissions limit:...AWMA, p. 579" The cited report does not contain the information, but rather refers to a 1981 internal research report that is not publicly available.)

<sup>51</sup> Comment 279 ("The record contains no support for the following BACT emissions limit:...no basis stated.").

<sup>52</sup> Comment 279 ("The record contains no support for the following BACT emissions limit:...no basis stated.").

<sup>53</sup> See, e.g., RTC 142 (referring to RTC 146).

<sup>54</sup> Comment 146.

permit decisions based on undocumented Internet searches “because Nucor did not provide sufficient technical support documentation with its BACT analyses.”<sup>55</sup> Third, Petitioners noted that portions of LDEQ’s BACT analysis were simply cut and pasted from Nucor’s submissions.<sup>56</sup> In its responses to these comments, LDEQ argues its burden is limited by a single paragraph from the NSR Manual:

The applicant should make a good faith effort to compile appropriate information from available information sources, including any sources specified as necessary by the permit agency. The permit agency should review the background search and resulting list of control alternatives presented by the applicant to check that it is complete and comprehensive.<sup>57</sup>

However, this paragraph simply sets out LDEQ’s burden for checking an applicant’s initial list of all demonstrated and potentially applicable control technology alternatives in Step 1 of the top-down BACT process, to assure it is complete. This is the starting point of the BACT analysis. It does not address LDEQ’s burden for any other step of the BACT process. The majority of the comments address unsupported rejections of viable control technologies in Steps 2 - 4. The NSR Manual describes the support required for these steps. LDEQ did not acknowledge, let alone satisfy, any of these additional burdens.

For Step 2, the NSR Manual states: “A demonstration of technical infeasibility should be clearly documented and should show, based on physical, chemical, and engineering principles, that technical difficulties would preclude the successful use of the

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<sup>55</sup> Comment 57 (“LDEQ admitted that it did not save or print the research and did not make it available for public review and comment. LDEQ must identify each permit decision that was based in whole or in part on information not made available for public review and comment.”).

<sup>56</sup> Comment 263.C.

<sup>57</sup> NSR Manual at B.11, *cited in* RTC 57, 146, 263.C.



control option on the emissions unit under review.”<sup>58</sup> For Step 3, “In the event that the top candidate is shown to be inappropriate, due to energy, environmental, or economic impacts, the rationale for this finding should be documented in the public record.” For Step 4: “In the event that the top candidate is shown to be inappropriate, due to energy, environmental, or economic impacts, the rationale for this finding needs to be fully documented for the public record.”<sup>59</sup> Finally, to support costs developed in Step 4, “the system design parameters must be specified.”<sup>60</sup> As reflected in comments by the Petitioners, the information required to support Steps 2 – 4 is missing from the record. In fact, as discussed below, LDEQ admits that some of this information simply does not exist, proving the BACT analysis is inadequate.

#### **D. BACT Determinations Lack Essential Design Information**

Petitioners identified many cases where BACT determinations were not supported, which are catalogued above. In response, LDEQ argues the design information does not exist “[b]ecause Nucor has not yet contracted with any construction vendors, the exact design associated with the supplied information cannot be specified. As such, it is impossible to provide site-specific design parameters, engineering drawings, or performance warranties.”<sup>61</sup>

First, the record indicates some preliminary design information is available as some of the emission rates were based on vendor guarantees. These include the TSP limit for coke pushing (COK-102 and COK-202); all of the limits for the MEROS system

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<sup>58</sup> NSR Manual, p. B.7. *See also* pp. B.19-B.20.

<sup>59</sup> NSR Manual, pp. B.26, B.29.

<sup>60</sup> NSR Manual, p. B.32.

<sup>61</sup> RTC 67, 70, 75, 76, 79, 98, 101, 104, 108. *See also* Comment 263.F(A)(3).

(SIN-101, SIN-102); and the NOx limits for the blast furnace stoves (STV-101, STV-102). Further, some design drawings were handed out at a public meeting.<sup>62</sup> It is unclear what role, if any, these vendor guarantees played in the BACT determinations, as they were not cited. The LDEQ suggests these are the results of a “preliminary design phase” based on contracts with limited details.<sup>63</sup> BACT analyses can be based on preliminary design information, with details supplied at a later date, so long as the information is publicly available.

The problem, though, is that the design specifications as set out in vendor guarantees and design drawings are not in the record, preventing Petitioners – and presumably LDEQ – from assessing the basis for BACT determinations. The guarantees, rather than a calculation based on them, are required. These are needed, for example, to assess technical feasibility of controls;<sup>64</sup> to evaluate the underlying design to determine if other, more effective control options can be applied;<sup>65</sup> to estimate and evaluate control costs;<sup>66</sup> to determine if any operating periods are excluded from the guarantee;<sup>67</sup> and to

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<sup>62</sup> Comment 263.F(A)(3).

<sup>63</sup> RTC 263.F(A)(3).

<sup>64</sup> NSR Manual, p. B.20. This is critical, for example, for coal compacting, which Nucor admits is untested.

<sup>65</sup> For example, without the design details of the unique coal charging apparatus used with coal compaction, it is not possible to determine what method(s) might be suitable for controlling residual emissions.

<sup>66</sup> NSR Manual, p. B.32. LDEQ claims in its Response to Comments that costs were considered. *E.g.* RTC 264.G. The NSR Manual is clear that design information is required to evaluate costs. The EAB has remanded permits when design data was missing. *See, e.g., Steel Dynamics*, 9 E.A.D. 740 (EAB 2001). Petitioners cannot evaluate the costs in Table I of the Final PSD Permit without the underlying design basis.

<sup>67</sup> BACT limits must be met on a continual basis at all levels of operation. NSR Manual, p. B.56. Vendor guarantees commonly exclude certain periods from their guarantees, such as startups, shutdowns, and malfunctions. The vendor guarantee is required to assess whether the proposed BACT limits can be met under all conditions. This is critical here as monitoring is not adequate to determine continuous compliance. *See, e.g., Comment 258.*

determine if the guaranteed limits apply during all reasonably expected operating conditions and uniformly across all levels of operation,<sup>68</sup> among others.

Second, without site-specific design information, LDEQ cannot adequately demonstrate that the designs selected as BACT are superior to other technologies, even if the particular technology selected does have supporting documentation. The design information required to support the selection of the control technology over another is missing from the record. The LDEQ cannot have it both ways, arguing the design basis is not available on the one hand, while arguing on the other that the same design basis supports rejecting the highest ranked technology. Rather, the unavailability of supporting design information necessarily means that LDEQ failed to ensure that the PSD Permit demonstrates, and the Part 70 Permit imposes, BACT.

In response to comments raising these concerns, LDEQ does not supply the requested information upon which it relied in its potential to emit calculations<sup>69</sup> and BACT analyses. Instead, it argues that the application is certified as accurate by a responsible party and prepared under the supervision of a professional engineer.<sup>70</sup> This violates the portions of PSD requiring this information.<sup>71</sup> It also prevents the public from reviewing the basis for the BACT determination, an independent violation of the CAA.<sup>72</sup>

The failure to supply design information is also contrary to Louisiana regulation, guidance in the NSR Manual, and standard engineering practice. Louisiana regulations

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<sup>68</sup> Vendor guarantees commonly are based on a very narrow range of conditions, such as full load operation or specific coals. The guarantees may not apply if a new coal source is used, or when a unit is operating at partial load. Alternatively, limits may be set as a function of load.

<sup>69</sup> 6/09 Application, Appendix C, at 72, 116 of 329; EIQ.

<sup>70</sup> RTC 263.G.

<sup>71</sup> LAC 33:III, § 509.N.

<sup>72</sup> 42 U.S.C. § 7475(a)(2).

require that the owner or operator of a proposed source “shall submit all information necessary to perform any analysis or make any determination required under this Section [§ 509].”<sup>73</sup> Section 509 covers BACT determinations.<sup>74</sup> The information that **must be** submitted includes:

- a. a description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings showing its design and plant layout;
- b. a detailed schedule for construction of the source or modification;
- c. a detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that best available control technology would be applied.<sup>75</sup>

Nucor has not included, and LDEQ has failed to require, all of the information necessary to making the BACT determinations.<sup>76</sup>

1. The BACT Determinations For VOC Emissions From The Blast Furnace, Hot Blast Stove, And Top Gas Boilers Are Unsupported

The EPA identified a lower VOC emission limit for the Blast Furnace/Hot Blast Stove and Top Gas Boiler (0.0026 lb/MMBtu) than required as BACT for Nucor (0.0056 lb/MMBtu).<sup>77</sup> The EPA requested that LDEQ explain why “this lower limit or an emission limit lower than the one currently proposed is not achievable.”<sup>78</sup>

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<sup>73</sup> LAC 33:III, § 509.N.

<sup>74</sup> LAC 33:III, § 509.J (Control Technology Review).

<sup>75</sup> LAC 33:III, § 509.N.1.

<sup>76</sup> Three examples are discussed below to illustrate this problem—coal charging (Section III.E); coke pushing (Section III.F), and coke quenching (Section III.G).

<sup>77</sup> Comment 148 (“[A] search of the RBLC produced a 0.0026 lb/MMBtu limit at Nucor Steel in Indiana. Please explain why this lower limit or an emission limit lower than the one currently proposed [0.0054 lb/MMBtu] is not achievable.”).

<sup>78</sup> Comment 148.

In response, LDEQ claims that the two processes “are significantly different in their design. The Indiana and Louisiana units are not comparable for BACT purposes.”<sup>79</sup> LDEQ does not provide any design information supporting this statement, rendering it impossible for Petitioners – or any other interested parties – to check the accuracy of this claim. This argument cannot be sustained without the design basis for both units. The LDEQ claimed the responsive design information for Nucor does not yet exist. If that is the case, then the final permits are premature and should be remanded.

2. The BACT Determination For Coal Charging And Coke Pushing Are Unsupported

Coal charging is the process of adding coal to the coke ovens. Coke pushing is the process of moving coke out of the ovens. Nucor has proposed to charge the ovens with a compacted “brick” of coal instead of “loose” coal used in conventional designs.<sup>80</sup> LDEQ argues that this new design is BACT for both coal charging<sup>81</sup> and coke pushing.<sup>82</sup> LDEQ rejects the top ranked control technology (collection hoods and fabric filters) used throughout the industry, even though compacted coal is untested and, by Nucor and LDEQ’s own admission, less effective.

These BACT determinations were challenged by Zen-Noh. Zen-Noh commented that the record does not support the selection of compacted coal as BACT for coal charging and coke pushing.<sup>83</sup> In response, LDEQ argues that “Nucor is fundamentally

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<sup>79</sup> RTC 148 (“The Blast Furnace/Hot Blast Stove and Top Gas Boiler [for the Indiana plant] . . . are significantly different in their design [from the Nucor plant].”).

<sup>80</sup> PDS, pp. 54-57; 6/09 Application, Sec. 1.2.2.2.

<sup>81</sup> PDS, p. 55 (fabric filter top ranked at 99% PM 10/PM2.5 control, compacted coal last ranked with no control efficiency).

<sup>82</sup> PDS, p. 58 (fabric filter top ranked, flat car pushing, relying on compacted coal, bottom ranked).

<sup>83</sup> Comment 158 (“[Petitioners are] concerned that the BACT analysis did not conclude with emission controls, since the most recent permits for nonrecovery coke oven facilities have all included particulate

different than traditional methods, resulting in a different BACT selection.”<sup>84</sup> Again, LDEQ does not provide any design information supporting this statement, rendering it impossible for Petitioners or any other interested party to check the accuracy of this claim. Moreover, LDEQ has created a Catch 22. It has argued “it is impossible to provide site-specific design parameters, engineering drawings, or performance warranties”<sup>85</sup> to excuse failures to support other BACT determinations. However, here, it must rely on the existence of this information to prove its point that process A is fundamentally different from process B. Without any design information, this test is impossible.

The LDEQ has not and cannot support an argument that two coal charging technologies are “fundamentally different” without providing the design basis for both. The LDEQ did not respond to Strata’s comment that no technical information is provided for compacted coal. There still is none in the record. The LDEQ cannot have it both ways. It cannot argue that design information does not exist, and yet rely on it to support its BACT determinations.

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control systems for pushing operations.”). *See also* comments 161 (“The BACT selections for PM/PM-10 emissions from coke oven charging and pushing ignore the current level of BACT established and demonstrated at other non-recovery coke oven facilities and settle on insufficient technologies without a thorough and detailed analysis of the available alternatives and control effectiveness.”), 162 (“No technical information is provided for the compacted coal.”), 163 (“The BACT analysis did not consider combinations of the inherently lower-polluting processes with the add-on controls.”), 165 (“Lastly, the BACT summary identifies compacted coal and flat car pushing as BACT for NO<sub>x</sub>, SO<sub>2</sub>, CO, and VOC emissions from coke oven pushing. However, no analysis was performed . . .”).

<sup>84</sup> RTC 158 (“Nucor is fundamentally different than traditional methods, resulting in a different BACT selection.”). The Response to Comments 161 and 165 refer to RTC 158 which contains the quoted language. *See also* RTC 163 (“Nucor is fundamentally different than traditional methods.”)

<sup>85</sup> RTC 67, 70, 75, 76, 79, 98, 101, 104, 108.

3. The BACT Determination For SO<sub>2</sub>, CO, And PM<sub>10</sub>/PM<sub>2.5</sub> Emissions From The Cast House Vents Are Unsupported

Hot metal from the blast furnace is separated into molten iron and slag in the cast houses. For SO<sub>2</sub> and CO, in Step 1 of its BACT analysis, LDEQ concluded there were no controls.<sup>86</sup> The LDEQ set the BACT emission limits for SO<sub>2</sub> and CO based on a 30+ year old emission estimate reported in the AWMA Manual without considering the wealth of information recently published by others, including the World Bank and the European Union.<sup>87</sup> These other sources are critical to consider for the iron and steel industry as most production and innovation has moved offshore. Further, the NSR Manual encourages the use of foreign sources in the top down analysis.<sup>88</sup>

Petitioners commented that the very same AWMA Manual that LDEQ relied on to establish SO<sub>2</sub> and CO BACT limits identifies process design options that can be used to control casting emissions. In addition, the European Commission and the World Bank have identified other options to control casting emissions, including covering the runners, evacuation of the emission sources, and fume suppression using nitrogen blankets during tapping. None of these options were identified by LDEQ nor could they be as “[n]othing is known about the design or procedures that will be used at the Nucor facility.”<sup>89</sup>

The LDEQ did not respond to the fact that control options exist, but rather focused its reply on a table of European emission rates that show that its selected BACT emission limits are higher than levels routinely achieved in Europe.<sup>90</sup> In spite of this

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<sup>86</sup> PDS, pp. 33-34.

<sup>87</sup> Comment 281.

<sup>88</sup> NSR Manual, pp. B.5 (as to Step 1 obligations: “This includes technologies employed outside of the United States.”). *See also id.* at B.11.

<sup>89</sup> Comment 281.

<sup>90</sup> RTC 281.

European emission data, LDEQ published its final PDC, still claiming no controls and without responding to our comment, which documented with published reports the existence of feasible controls.

Petitioners also compared the LDEQ BACT limits for SO<sub>2</sub>, CO, and PM<sub>10</sub> with values measured at European cast houses in a recent industry-wide survey conducted by the European Commission. This comparison shows lower emissions are being achieved than those selected as BACT for Nucor.<sup>91</sup> In response, the LDEQ complains that there is no supporting documentation (beyond the report itself, a disingenuous claim as LDEQ relied on only AWMA Manual in its own determination) and speculates that these emission rates may also be based on 30+ year old facilities. This is not responsive.

The LDEQ should have used the contact information in the documents supplied by Petitioners to answer the questions it poses in its response to comment 281. As LDEQ pointed out in its responses to other comments, the LDEQ views its role as: “The permit agency should review the background search and resulting list of control alternatives presented by the applicant to check that it is complete and comprehensive.”<sup>92</sup> Obviously, this is a clear case where LDEQ’s review was inadequate. Even when pointed to relevant sources of information that refute its BACT determination, the LDEQ still did not discharge its duty to identify all feasible control options and to determine the emission limitation based on the maximum degree of reduction that is achievable.

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<sup>91</sup> Comment 281, p. 370, inset table.

<sup>92</sup> RTC 57, 146, 263.C.



**E. LDEQ Improperly Based BACT Determinations On AP-42 Emission Factors For Many Sources**

Many of LDEQ's BACT determinations were based on generic, industry-wide average emission factors published in an EPA report, "Compilation of Air Pollutant Emission Factors," referred to as "AP-42."<sup>93</sup> The Petitioners compiled a table of BACT emission limits that showed 38 of LDEQ's BACT determinations were based on AP-42 emission factors.<sup>94</sup> Further, in response to Comment 279, LDEQ relies on AP-42 for four additional sources, bringing the total to 42.

The Petitioners explained that the use of generic AP-42 emissions factors to determine BACT does not comply with the definition of BACT. These factors are industry wide averages and irrelevant for the case-by-case, site-specific determinations required to satisfy the definition of BACT. As EPA explained in the introduction to AP-42:

Emission factors in AP-42 are neither EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER) nor standards. Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor. As such, a permit limit using an AP-42 emission factor would result in half of the sources being in noncompliance.<sup>95</sup>

The Petitioners further explained that a BACT limit must represent the lowest limit "*achievable*" for the source as of the date the permit is issued—not the average

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<sup>93</sup> EPA, Compilation of Air Pollutant Emission Factors, Volume I: Stationary and Area Sources, EPA Report AP-42, *available at* <http://www.epa.gov/ttn/chief/ap42/index.html>.

<sup>94</sup> Comment 263.G.

<sup>95</sup> AP-42, Introduction, p. 2 (emphasis in original), *available at* <http://www.epa.gov/ttn/chief/ap42/c00s00.pdf>.

limit previously *achieved* by a collection of sources in the distant past. The BACT standard is intended to require use of “the latest technological developments [in pollution control] as a requirement in granting the permit,” so as to “lead to rapid adoption of improvements in technology as new sources are built,” rather than “the stagnation that occurs when everyone works against a single national standard for new sources.”<sup>96</sup> In response, LDEQ makes three claims.<sup>97</sup>

First, LDEQ claims it followed EPA’s suggested top-down approach. This side steps the issue as the top-down approach implements the definition of BACT, which is a case-by-case determination. AP-42 emission factors are industry-wide averages, not emission limits based on the maximum degree of reduction that can be achieved by a new source built decades after the AP-42 emissions were measured. The NSR Manual does not cite AP-42 as a source of information for making BACT determinations.<sup>98</sup> Rather, it cites AP-42 as a source for: (1) estimating fugitive emissions;<sup>99</sup> (2) estimating worst-case uncontrolled emissions;<sup>100</sup> (3) estimating secondary growth emissions,<sup>101</sup> and (4) estimating potential to emit.<sup>102</sup> Worst-case uncontrolled emissions are the starting point of a BACT determination, not the ending point. Further, AP-42 emission factors are not listed as one of the sources to consult to determine BACT limits.<sup>103</sup>

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<sup>96</sup> Comment 263.H.

<sup>97</sup> RTC 263.H.

<sup>98</sup> NSR Manual, Chapter B., Best Available Control Technology.

<sup>99</sup> NSR Manual, Table A-3.

<sup>100</sup> NSR Manual, p. A.22.

<sup>101</sup> NSR Manual, p. D.4.

<sup>102</sup> NSR Manual, p. c.2.

<sup>103</sup> NSR Manual, p. B.11.

Second, LDEQ points to a single permit, issued by EPA Region 6 to a Texas re-gasification facility, which contains a table of permitted emissions based on AP-42 emission factors.<sup>104</sup> A single example of someone else's error does not excuse LDEQ from making the same error 42 times. The Texas permit does not identify the subject emission rates as BACT emission rates. The permit concludes BACT is the firing of natural gas and sets limits on gas use.

Third, LDEQ defends its use of AP-42 by arguing "there is not a facility in the United States dedicated solely to pig iron production" nor any new integrated steel mills in over 30 years.<sup>105</sup> This is misleading, as there are new facilities outside the United States, where all the growth in these industries has occurred. Nucor's German vendor, Uhde, is well situated to assess foreign experience. Moreover, foreign sources are routinely considered in BACT analyses.<sup>106</sup> In fact, LDEQ acknowledges this, even citing a passage out of the NSR Manual in support of using foreign experience, claiming it looked abroad, and citing the use of the MEROS system as evidence.<sup>107</sup> It is inadequate for LDEQ to claim lack of U.S. experience to bolster using industry-wide, outdated averages to set 42 BACT emission limits. Petitioners cited guidance published by the European Commission, for example, that contains updated emissions data for the production of iron and steel.<sup>108</sup> This type of information should have been sought out and used to establish BACT instead of outdated generic AP-42 emission factors.

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<sup>104</sup> RTC 263.H.

<sup>105</sup> RTC 263.H.

<sup>106</sup> NSR Manual, p. B.11 ("Also, technologies in application outside the United States to the extent that the technologies have been successfully demonstrated in practice on full scale operations.")

<sup>107</sup> RTC 146.

<sup>108</sup> See, e.g., Comments 281, 282.

The 42 BACT emission limits based on AP-42 emission factors should be remanded to the LDEQ for a proper BACT determination.

**F. The BACT Determination For Particulate Matter Emissions From Coal Charging Is Inconsistent With The Definition Of BACT.**

Coal charging is the process of adding coal to the coke ovens. Charging operations have clear meaning in the coke industry and do not include coal preparation.<sup>109</sup> Nucor has proposed to charge the coke ovens with a compacted “brick” of coal instead of “loose” coal used in conventional designs.<sup>110</sup> Coal compacting is part of coal preparation and is a separate emission unit (COK-100) that is not part of coal charging<sup>111</sup> and thus not discussed here. Coal charging, regardless of the process, generates particulate matter from coal handling<sup>112</sup> that must be controlled as evidenced by vendor guarantees<sup>113</sup> and information in other permitting files.<sup>114</sup>

The LDEQ’s BACT analysis ranked the technically feasible control options under Step 3, listing fabric filters at 99% PM control as the top technology, followed by electrostatic precipitators (98%), cyclones (80%), negative pressure ovens, and compacted coal. In Step 5, LDEQ selected the lowest ranked control options—negative pressure ovens and compacted coal—as BACT because they represent “Inherently Lower Polluting Processes.” These options allegedly “prevent” airborne particulates and do not

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<sup>109</sup> PDS, p. 54, Comment 154, pp. 120-121.

<sup>110</sup> PDS, pp. 54-57; 6/09 Application, § 1.2.2.2.

<sup>111</sup> Comment 154 (“The coal preparation (i.e., formation of the coal brick, transfer of the brick onto a steel plate, transfer of the brick and steel plate onto a car, and transport to the over) and associated coal equipment are **not**, by definition, part of the charging process.”) (emphasis in original).

<sup>112</sup> Comment 158 (“These emissions [coal charging emissions] are typically controlled from side charging of non-recovery coke ovens by a hood and baghouse. The negative pressure oven will likely collect some of the emissions from the oven, but emissions near the door are likely to escape since there is no collection device.”).

<sup>113</sup> 6/09 Application, Appendix A, p. 73 of 329.

<sup>114</sup> See FDS Revised Staff Determination (RTC 163) and Middletown Permit Application (Comment 166).

involve any add-on controls.<sup>115</sup> This determination is inconsistent with the definition of BACT.

However, in responses to comments, LDEQ ignores its own BACT analysis and instead points to Nucor's BACT analysis in its June 2009 Application. The Nucor analysis ranks compacted coal at the top at 99%, followed by fabric filters (99%), electrostatic precipitators (98%), cyclones (80%), and negative pressure ovens (50%).<sup>116</sup> This revised ranking is not present in the Preliminary Determination Summary in the Final PSD Permit.<sup>117</sup> Further, the LDEQ analysis specifically states that "...assigning a specific control efficiency to compacted coal charging is problematic.",<sup>118</sup> contradicting its position in response to comment 263.F(A)(2). This and many other inconsistencies between the responses to comments, the Final PSD Permit, and Final Part 70 Permit suggest a rush to judgment, multiple authors, and multiple interests have corrupted the BACT process.

1. BACT is an *Emission Limit* Based On Maximum Degree Of Reduction

BACT is an emission limit based on the maximum degree of reduction that is achievable without any adverse collateral impacts.<sup>119</sup> In Step 3 of its top-down BACT analysis, LDEQ ranks fabric filter baghouses, which achieve 99% control, as the top technology, followed by two other add-on controls that are ranked above negative pressure ovens and compacted coal.<sup>120</sup> These add-on technologies are widely used

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<sup>115</sup> PDS, pp. 53-57; 6/09 Application, § 3.43.1, pp. 3-40 to 3-44. See Comments 154 – 165, 169.

<sup>116</sup> RTC 263.F(A)(2) n.303 (citing to EDMS Doc. No. 42946044, Sections 3.4.3 and 3.4.4). Revised ranking is at p. 3-43.

<sup>117</sup> Final PSD Permit, PDS, p. 55.

<sup>118</sup> PDS, p. 57.

<sup>119</sup> LAC 33:III, § 509.B; 40 C.F.R. 52.21(b)(12); see also CAA §169(3), 42 U.S.C. §7479(3).

<sup>120</sup> PDS, p. 55.

throughout the industry to control coal charging emissions.<sup>121</sup> They “have been determined, demonstrated, and operated as BACT at other facilities.”<sup>122</sup> However, the BACT analysis skips over the rest of the top-down analysis (Steps 3-5) and leaps to compacted coal and negative pressure ovens as satisfying BACT without a shred of evidence that these options satisfy the definition of BACT.<sup>123</sup> The LDEQ does not respond to this issue.<sup>124</sup>

The technically feasible, top ranked technologies, e.g., fabric filters, can only be eliminated if there is an on-the-record demonstration of adverse collateral impacts.<sup>125</sup> The BACT analysis in the Preliminary Determination Summary did not identify any adverse collateral impacts. While the PDS acknowledges high incremental costs, it cites to Table I of the Final PSD Permit, which states: “[n]o alternatives were eliminated solely

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<sup>121</sup> Comments 159 (“These emissions are typically controlled from side charging of non-recovery coke ovens by a hood and baghouse [fabric filter].”), 161 (“[Petitioners] researched currently permitted and/or operating non-recovery coke oven facility in the United States to compare controls technologies with the Nucor facility. We identified six such facilities . . . all of the listed facilities but one operates with add-on PM control equipment (i.e. fabric filters, multicyclones) for charging and pushing operations.”)

<sup>122</sup> Comment 162.

<sup>123</sup> Comment 162 (“The Nucor BACT determination fails to provide sufficient detail on the control efficiencies, expected emission rates, expected emission reductions, cost effectiveness or other control effectiveness to reliably evaluate the control technologies. No technical information is provided for the compacted coal. The evaluation sections for negative oven pressure and compacted coal state that ‘assigning a specific control efficiency . . . is problematic’ but they ‘have the potential to be more environmentally effective than add-on controls.’ These are the details that the BACT analysis is required to provide and use in justifying the selected control technologies.”)

<sup>124</sup> RTC 162 refers only to RTC 169, which does not respond to the comment that the BACT analysis was flawed for failure to select the top-ranked technology.

<sup>125</sup> NSR Manual, pp. B.26, B.29. *See* Knauf Fiber Glass, GmbH, 8 E.A.D. 121, 131 (EAB 1999) (“A permitting authority’s decision to eliminate potential control options . . . due to collateral impacts [] must be adequately explained and justified.”); Masonite Corp., 5 E.A.D. 551, 566 (EAB 1994) (remanding PSD permit decision in part because BACT determination for one emission source was based on an incomplete cost-effectiveness analysis); Pennsauken County, N.J., Resource Recovery Facility, 2 E.A.D. 667, 672 (Adm’r 1988) (remanding PSD permit decision because “[t]he applicant’s BACT analysis . . . does not contain the level of detail and analysis necessary to satisfy the applicant’s burden” of showing that a particular control technology is technically or economically unachievable); Columbia Gulf, 2 E.A.D. 824, 830 (EPA 1989) (permit applicant and permit issuer must provide substantiation when rejecting the most effective technology.).

due to cost...”<sup>126</sup> The Final PSD Permit is the final word. Thus, there is no on-the-record finding of adverse impacts from using the highest ranked controls.

Even if it were the case that these additional controls were eliminated based on incremental cost, contrary to the plain language of the Final PSD Permit, a remand still would be warranted as the record does not contain the support required for a complete BACT cost analysis.<sup>127</sup> The cost analysis supporting Table I is missing, for example, battery limits, costs broken out by major pieces of equipment,<sup>128</sup> and comparison of costs to other facilities and other technologies.<sup>129</sup>

The rejection of the top ranked control is further based only on an incremental cost analysis. However, reliance on only incremental cost can “give an impression that the cost of a control alternative is unreasonably high, when, in fact, the total cost effectiveness, in terms of dollars per total ton removed, is well within the normal range of acceptable BACT costs.”<sup>130</sup> Here, the rejected technologies, collection hood and fabric filter, are widely used at similar facilities and routinely found to be cost effective when average or total cost effectiveness is calculated. A control can only be eliminated if its

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<sup>126</sup> Final PSD Permit, Table I, p. 122.

<sup>127</sup> NSR Manual, § IV.D.2.

<sup>128</sup> It is based on, for example, a lump sum vendor estimate of \$30/acfm. 9/09 Application, Figure 3-2. *See* Steel Dynamics, Inc., PSD Appeal Nos. 99-4 & 99-5, 165, 202-207 (EAB 2000) (“We have also found in the record and briefs no costing information on the major pieces of equipment within the SCR system..”) and NSR Manual, p. B.33.

<sup>129</sup> Steel Dynamics, Inc., 9 E.A.D. 165, 202-07 (2000); Masonite Corp., 5 E.A.D. 551, 564 (EAB 1994) (cost effectiveness data are “compared with what other companies in the same industry have been required to pay in recent BACT determinations to remove a ton of the same pollutant”); Inter-Power of New York Inc., 5 E.A.D. 130, 149 (EAB 1994) (absence of comparative cost-effectiveness data “makes a cost-effectiveness determination more vulnerable to attack.”).

<sup>130</sup> NSR Manual, pp. B.45 – B.46.

average cost effectiveness is outside of the range borne by others. Incremental cost alone cannot be used to reject the top ranked control option.<sup>131</sup>

2. Inherently Lower-Polluting Processes Must Be Included In The BACT Analysis.

Nucor justifies selecting a lower ranked BACT option by claiming it is an “Inherently Lower Polluting Process.”<sup>132</sup> This does not excuse LDEQ from performing a top-down BACT analysis and selecting the top-ranked process.<sup>133</sup> Inherently lower polluting processes should be included in Step 1 of a BACT analysis and evaluated through Step 5, along with add-on controls and combinations thereof.<sup>134</sup> The classification of a control as “inherently lower polluting” is not an automatic pass as assumed by LDEQ. LDEQ responds with arguments that are inconsistent with the definition of BACT.

*(a) Inherently Lower-Polluting Processes Must Be Included In The Top-Down BACT Analysis*

LDEQ argues that “the NSR Manual does not preclude inherently lower-polluting process (sic) from being considered as a stand-alone BACT determination.”<sup>135</sup> This same argument has been advanced in two cases before the EAB, the final Agency decision-

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<sup>131</sup> See General Motors, Inc., 10 E.A.D 360, 371–75 (remands permit for relying only on incremental cost effectiveness to justify rejecting more effective control) and other cases cited therein.

<sup>132</sup> See Comments and RTCs 163, 165, 191, 220, 263.D, 264.G. See also, e.g., PDS, p. 57 (“A top-down BACT analysis was performed for the coal charging operations, and the combination of negative pressure ovens and compacted coal charging, which represent Inherently Lower Polluting Processes, is BACT.”).

<sup>133</sup> Comment 163.

<sup>134</sup> Comment 163. See also NSR Manual, p. B.5 (In discussing Step 1, “As discussed later, in some circumstances inherently lower-polluting processes are appropriate for consideration as available control alternative.”), B.10 (“Potentially applicable control alternatives can be categorized in three ways: inherently lower-emitting process . . . add-on controls . . . combinations of inherently lower emitting processes and add-on controls . . . . The top-down BACT analysis should consider potentially applicable control techniques from all three categories.”)

<sup>135</sup> RTC 163.



maker on administrative appeals under all major environmental statutes that EPA administers.<sup>136</sup> In both cases, the EAB remanded the permit back to the agency, concluding that inherently lower-polluting processes do not satisfy the obligation to meet all applicable BACT requirements. In *Masonite*, the EAB concluded:

the Region believes that BACT for VOC emissions from the Grain Line should be based on water-borne coatings alone, without resort to add-on technologies. We disagree that these comparisons are dispositive. BACT may require the use of add-on controls even though Masonite achieves the same emissions rate using water-borne coatings as other facilities have achieved using costly incineration of high VOC coatings....“However, the fact that a given production technology implemented is “inherently” lower polluting than other technologies does not end a BACT analysis.

In re *Masonite Corporation* 5 E.A.D., 551, 568 (EAB 1994).

In *General Motors*, the EAB held “the fact that a given production technology implemented is ‘inherently’ lower polluting than other technologies does not end a BACT analysis. As we have previously explained, ‘the option to utilize an inherently lower-polluting process does not, in an (sic) of itself, mean that no additional add-on controls need be included in the BACT analysis.’” The EAB then concluded:

The Board finds unpersuasive MDEQ’s argument that its application of low-VOC coatings satisfies the obligation to meet all applicable BACT requirements because it is an “inherently lower pollution process.” The fact that a given production technology may be “inherently” lower polluting than other technologies does not end a BACT analysis; nothing in the CAA or PSD regulations indicates that facilities utilizing lower polluting technologies should not be required to meet all applicable BACT requirements.<sup>137</sup>

Thus, LDEQ’s identical argument, that negative pressure ovens and compacted coal ends the BACT analysis, is contrary to the top-down analysis as interpreted by

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<sup>136</sup> 40 CFR § 1.25(e). See also 57 Fed. Reg. 5320, 5322 (Feb. 13, 1992) and S. Rep. No. 103-257, 103d Cong. 2d Sess. 86 (1994).

<sup>137</sup> *General Motors, Inc.*, 10 E.A.D 360, 361 (EAB 2002).

EPA's Environmental Appeals Board. The BACT determinations relying on this faulty logic are inconsistent with the definition of BACT and should be remanded for reconsideration.

*(b) Combinations of Add-On Controls and Inherently Lower-Polluting Process Must Be Included In The BACT Analysis*

LDEQ selected coal compaction, an untested control option, from a field of options that included widely used controls with higher control efficiencies, without considering combinations. In support of this choice, the LDEQ argues: "the NSR Manual does not preclude inherently lower-polluting process [sic] from being considered as a stand-alone BACT determination."<sup>138</sup>

BACT requires that all feasible options be evaluated, including combinations. Combinations of control options would achieve a higher degree of reduction<sup>139</sup> and thus would be BACT, unless adverse collateral impacts are demonstrated on the record. The NSR Manual explains:

Combinations of inherently lower-polluting processes/practices [] and add-on controls are likely to yield more effective means of emissions control than either approach alone. Therefore, the option to utilize a (sic) inherently lower-polluting process does not, in and of itself, mean that no additional add-on controls need be included in the BACT analysis. These combinations should be identified in step 1 of the top down process for evaluation in subsequent steps.<sup>140</sup>

. The LDEQ's BACT analysis for coal charging, coke pushing, and coke quenching, all processes where coal compaction was selected as BACT, did not consider combinations of add-on controls and inherently lower-polluting processes.<sup>141</sup> Thus, these

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<sup>138</sup> RTC 163.

<sup>139</sup> Comments 163 and RTC 163, p. 127.

<sup>140</sup> NSR Manual, p. B.14. See also Masonite Corp., 5 E.A.D. 551 (EAB 1994).

<sup>141</sup> Comment 163.

BACT determinations are inconsistent with the definition of BACT and should be remanded for reconsideration.

Elsewhere, in response to Petitioner's Comment 264.G, filed April 2010, LDEQ argues outside of its BACT determination in the final Preliminary Determination Summary that it eliminated combinations based on cost.<sup>142</sup> However, the Final PSD Permit plainly states in the table of control costs that "[n]o alternative were eliminated solely due to costs..." Thus, claims made in responses to comments are inconsistent with LDEQ's BACT determination and issued PSD Permit, which plainly did not evaluate combinations of control options.

*(c) Adverse Impacts of Coal Compaction Not Evaluated.*

In responding to comments, the LDEQ for the first time argues that the selection of coal compacting restricts the BACT technology choices for coal charging, coke pushing, and coke quenching.<sup>143</sup> If not for the use of coal compaction (an untested method), much lower emission limitations could be achieved using other demonstrated control options. For example, but for coal compaction, according to LDEQ's response to comment 266.B, a low emission quench tower could be used. But for coal compaction, a much more efficient collection hood and fabric filter baghouse could be used for coal charging. And but for coal compaction, a much more efficient collection hood and fabric filter baghouse could be used to control coke pushing emissions. These three coke oven processes are united by their reliance on coal compaction. Thus, they should be evaluated for BACT as a single unit. Such an analysis likely would result in the rejection of coal compaction due to its adverse impacts on emissions from downstream units. The

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<sup>142</sup> RTC 264.G, p. 305.

<sup>143</sup> See, e.g., RTC 266.B.

top-down BACT process requires that both beneficial and negative impacts of control options be evaluated.<sup>144</sup> The LDEQ has failed to evaluate the adverse impacts of coal compaction, namely higher emissions from downstream processes and higher VOC emissions from additives.

3. Fundamentally Different Processes Do Not Excuse Failure To Evaluate Combinations Of Control Options

LDEQ argues that the use of compacted coal makes Nucor “fundamentally different” from other coke plants.<sup>145</sup> The LDEQ has not and cannot support an argument that two coal charging technologies are “fundamentally different” without providing the design basis for both. The LDEQ did not respond to a comment that no technical information was provided for compacted coal.<sup>146</sup> There is none in the record. Further, LDEQ argued that none exists.<sup>147</sup> The LDEQ cannot have it both ways. It cannot argue that design information does not exist, and yet rely on it to argue that two coal charging processes are “fundamentally different.” The record does not support this argument. Regardless, there is no exclusion for “fundamentally different processes” from the Step 1 obligation to evaluate all control options, including combinations of add-on, and inherently lower polluting processes.

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<sup>144</sup> NSR Manual, p. B.8.

<sup>145</sup> RTC 158, 163.

<sup>146</sup> Comment 162.

<sup>147</sup> RTC 67, 70, 75, 76, 79, 98, 101, 104, 108 (“[b]ecause Nucor has not yet contracted with any construction vendors, the exact design associated with the supplied information cannot be specified. As such, it is impossible to provide site-specific design parameters, engineering drawings, or performance warranties.”).

4. The BACT Limits For Particulate Matter From Coal Charging And Coal Pushing Are Less Stringent Than The MACT Limits And Are Not BACT

In response to comments, LDEQ claims that the particulate matter limits it has set for coal charging and coke pushing MACT are identical and satisfy BACT. They further allege that Nucor will meet the same limits as other facilities with more efficient controls.<sup>148</sup> This is erroneous, as explained below.

*(a) BACT Does Not Equal MACT*

Existing regulatory limits, such as MACT and NSPS, establish the floor or starting place for a BACT determination.<sup>149</sup> LDEQ cannot use a MACT limit expressed as total suspended particulate matter reported only in the Part 70 Permit to satisfy BACT, a preconstruction requirement established to meet PSD, which must be in the PSD Permit. The corresponding PM10 limits in the PSD Permit, when converted to the same basis as in the Part 70 Permit, are much higher than BACT limits reported elsewhere in the record. Assuming that MACT did satisfy BACT, which it does not, the correct course would be to convert the MACT limit expressed as total suspended particulate, into PM10 (which would be much lower). This is not the correct course, as an inherently lower polluting technology does not automatically satisfy BACT.

*(b) Meeting Same Emission Limit In FDS Permit Proves Nothing*

LDEQ states that Nucor, using only compacted coal, must meet the same emission limit as other facilities that have all three controls – negative pressure ovens, compacted coal, and collection hood/baghouse.<sup>150</sup> This is not necessarily true, however, because the definition of BACT requires an emission limitation based on the maximum

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<sup>148</sup> RTC 163, 264.G.

<sup>149</sup> See, e.g., NSR Manual, p. B.12.

<sup>150</sup> RTC 154, 163, 169.

degree of reduction that is achievable. The FDS facility will achieve a higher degree of emission reduction as it requires both add-on controls (collection hood/baghouse) and inherently less-polluting controls (compacted coal and negative pressure ovens). This is contrary to the definition of BACT, which requires an emission limitation based on the maximum degree of reduction that has no adverse collateral impacts. No adverse collateral impacts are claimed in LDEQ's BACT analysis. The FDS facility supports the fact that BACT is not required for coal charging at the Nucor coke ovens.

In support of its claim that compacted coal and negative pressure ovens alone satisfy BACT, the LDEQ points to one other facility, FDS Coke, that it claims has the same emission limit for coal charging (0.0081 lb/ton) and uses compacted coal, negative pressure ovens, and a collection hood/baghouse.<sup>151</sup> This is wrong for two reasons.

First, it is misleading. The LDEQ claims the FDS limit is a BACT limit.<sup>152</sup> This is factually wrong as the FDS limit of 0.0081 lb/ton was set to comply with NESHAPS regulations at 40 CFR 63, Subpart L, not BACT.<sup>153</sup> The FDS BACT analysis did not set a lb/ton BACT emission limitation, but rather specified a stack gas grain loading of 0.008 gr/dscf,<sup>154</sup> an opacity limit of 20%, and a combination of design, equipment, work practice, and operational standards for coal charging: compacted coal plus negative

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<sup>151</sup> RTC 163 ("LDEQ reviewed the permit for FDS Coke Company issued on January 31, 2008, which reflects use of compacted coal and baghouse controls to limit particulate emissions. Despite the fact that Nucor's permit does not require add-on controls, Nucor must meet the same limit as that established for FDS.")

<sup>152</sup> RTC 169 ("The BACT determination for coal charging set forth in FDS' 2008 permit is 0.0081 lb/ton of dry coal charged.").

<sup>153</sup> Final Permit to Install Modification, FDS Coke Plant, January 31, 2008, p. 19 (cited to 40 CFR 63, Subpart L.)

<sup>154</sup> 6/09 Application, Table 3-4-7, at 3-42; FDS Revised Staff Determination for the Application to Construct Under the Prevention of Significant Deterioration Regulations for FDS Coke Plant, L.L.C., Oregon, Ohio, PTI No. 04-01360 [hereinafter Revised Staff Determination].

pressure ovens and a collection hood/baghouse.<sup>155</sup> This approach is also allowed under the Louisiana definition of BACT<sup>156</sup> and could have and should have been used by Nucor, given its claim that no actual emissions data exists.<sup>157</sup> The absence of emissions data triggers setting an alternative BACT limit.<sup>158</sup>

Second, Nucor's comparison with FDS compares apples with oranges. LDEQ does not disclose the pollutant it is comparing in its response ("Nucor must meet the same limit as that established for FDS.").<sup>159</sup> There are three particulate matter pollutants – total PM, PM10, and PM2.5. Total particulate matter (total suspended particulate) or PM is the total amount of filterable particulate matter that is present, regardless of size of the particles. PM10, on the other hand, includes only those particles that have an aerodynamic diameter less than 10 microns. Thus, PM10 is a subset of PM and in material handling operations, such as coal charging and coke pushing, PM10 is generally less than PM. The Nucor coal charging particulate PSD limit is set on PM10,<sup>160</sup> while the FDS particulate limit referenced in the response is set on total suspended particulate or

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<sup>155</sup> Revised Staff Determination.

<sup>156</sup> LAC 33:III, §509.B. *See also* 40 C.F.R. 52.21(b)(12, CAA §169(3), 42 U.S.C. §7479(3); Brooklyn Navy Yard Res. Recovery Facility, 3 E.A.D. 867 (EPA 1992) ("As noted above, the regulatory definition of BACT provides that work practice standards and the like may be employed to the extent that technological or economic limitations on the use of measurement methodologies would make an emission standard infeasible. It is common for PSD permits to include a combination of emissions standards and work practice standards in the emission limitation for a given pollutant.")

<sup>157</sup> RTC 163, at 127.

<sup>158</sup> LAC 33: III, § 509.B (definition of BACT). *See also* Louisiana Guidance for Air Permitting Actions, February 28, 2008, at 91.

<sup>159</sup> RTC 163. *See also* RTC 169.

<sup>160</sup> Final PSD Permit, Specific Conditions, at 117 (the limit of 0.0081 lb/ton occurs in a column captioned "PM10.").

PM.<sup>161</sup> This difference is material and results in about a factor of two difference between them.

The potential to emit calculations for “coke oven charging” in the Application show Nucor assumed 0.0081 lb/ton for **PM** and 0.0040 lb/ton for **PM10** for coal charging.<sup>162</sup> Thus, LDEQ has mixed up PM and PM10 in its PSD Permit and response to comments. According to Nucor’s calculations, 49% of the filterable particulate matter (PM) from coal charging is PM10. Thus, to compare apples with apples, LDEQ should have compared the FDS filterable PM limit of 0.0081 lb/ton with the equivalent Nucor filterable PM limit of 0.016 lb/ton,<sup>163</sup> extrapolated from the BACT limit of 0.0081 lb/ton PM10. The Nucor limit of 0.0081 lb/ton shows up only in the Final Part 70 Permit as total suspended particulate matter and is inconsistent with the PSD permit, which sets a total PM10 limit of 0.0081 lb/ton.<sup>164</sup> In sum, the more effective control at FDS compared on an apples to apples basis with Nucor, shows FDS will meet a lower PM limit than Nucor.

*(c) The Part 70 Permit and PSD Permit Are Inconsistent*

The LDEQ claims that the MACT limit (0.0081 lb/ton) is identical to the limit in “the permit.”<sup>165</sup> However, this is the wrong Permit.<sup>166</sup> The Part 70 Permit sets the limit for coal charging on total suspended particulate  $\leq 0.0081$  lb/ton of dry coal charged.

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<sup>161</sup> Final Permit to Install Modification, FDS Coke Plant, January 31, 2008, at 19 (citing 40 CFR 63, Subpart L, which is based on PM).

<sup>162</sup> Comments 156, 170; 6/09 Application, Appendix C, at 73 of 327.

<sup>163</sup> The potential to emit calculations in the 6/09 Application, Appendix C, at 73 of 327 assume that 49% of the filterable PM is PM10 calculated from  $0.0040/0.0081 = 0.49$ . Thus, the limit, corresponding to the BACT filterable PM10 limit is  $0.0081/0.49 = 0.016$  lb/ton.

<sup>164</sup> Final Part 70 Permit, Conditions 22, 109.

<sup>165</sup> RTC 264.G. See Final Part 70 Permit, Conditions 22 and 109.

<sup>166</sup> RTC 264.G.



BACT was determined to be Compacted Coal as an Inherently Lower Polluting Process or Practice...”<sup>167</sup> The PSD Permit, on the other hand, establishes “maximum allowable emissions rates” for coal charging of 0.0081 lb/ton dry coal charged based on PM<sub>10</sub>, footnoted to clarify that this limit will meet the MACT limit of 0.0081 lb/ton under 40 CFR 63.303(d)(2).

As explained in the Petitioners’ comments, PM (or total suspended particulate) is not a regulated PSD pollutant, while PM<sub>10</sub> is. The PSD Permit sets a limit on PM<sub>10</sub> at 0.0081 lb/ton, not on total suspended particulate. As noted elsewhere, PM<sub>10</sub> does not equal PM. For coal charging, about 49% of the PM is PM<sub>10</sub>. The corresponding limit on total suspended particulate is 0.0165 lb/ton. Thus, BACT does not equal MACT. The BACT limit, when converted to a total suspended particulate matter basis, is roughly twice as high as levels set in other permits and relied on in LDEQ’s potential to emit calculations.

In any event, even if MACT did equal BACT, the Permit does not actually satisfy MACT. The pertinent MACT standard provides that “[f]or charging operations, the owner or operator shall install, operate, and maintain an emission control system for the capture and collection of emissions in a manner consistent with good air pollution control practices for minimizing emissions from the charging process.”<sup>168</sup>

All new non-recovery coke ovens that have been permitted or constructed since promulgation of 40 C.F.R. 63 Subparts L and CCCCC have included emission capture and control systems for coke oven charging and pushing operations, including the Uhde-designed coke ovens at the FDS Coke facility in Ohio. LDEQ has not demonstrated that

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<sup>167</sup> Final Part 70 Permit, Conditions 22, 109.

<sup>168</sup> 40 C.F.R. § 63.303(b)(2).

compacted coal charging and flat bed pushing, which LDEQ determined to be BACT for coke oven charging and pushing emissions, will result in emissions that are less than or equal to the emissions limitations in 40 C.F.R. 63 Subparts L and CCCCC.

4. BACT Is A Pre-Construction Requirement

LDEQ argues that it actually “expects” emissions to be lower than “achievable” with “traditional” technologies, but no actual emissions data exists, as the technology has never been employed. Thus, LDEQ will require Nucor to test after it is built to determine the baseline. “LDEQ will require Nucor to evaluate the need for additional controls once baseline uncontrolled emissions can be established by testing.”<sup>169</sup> This is contrary to both federal and Louisiana regulations. No new major source, such as Nucor, may start construction without a BACT determination.<sup>170</sup> It cannot be made after the facility is built and off-the-record.<sup>171</sup> The absence of emissions data does open the door to a post operational limit, but rather to setting a limit based on design, equipment, work practice, and operational standards.

5. Lower PM Emission Limits Are Achievable For Coal Charging

The record contains a lower PM10 emission limit for coal charging and no explanation for why it does not satisfy BACT.<sup>172</sup> Nucor itself assumed a much lower PM10 emission limit for coal charging and coke pushing in its potential to emit calculations and air quality modeling than the PM10 limit it ultimately set as BACT.

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<sup>169</sup> RTC 163, at 127.

<sup>170</sup> LAC 33:III §509.A.3 and 509.J. *See also* 40 CFR § 52.21(b)(8), (b)(11).

<sup>171</sup> *See* Comment 165 (“No permit should be issued until such work has been completed and offered for public review.”).

<sup>172</sup> Comment 161 (“The BACT selection for PM/PM10 emissions from coke oven charging and pushing ignore the current level of BACT established and demonstrated at other non-recovery coke oven facilities and settle on insufficient technologies without a thorough and detailed analysis of the available alternative and control efficiencies.”). *See also* Table 1 in the original Strata letter, not published in RTC 16.

The calculations show Nucor assumed 0.0081 lb/ton for filterable PM and 0.0040 lb/ton for filterable PM10 from coal charging.<sup>173</sup> This error was pointed out in Comment 156, but was never resolved. This has serious ramifications for the PSD air quality modeling, which is based on the lower PM10 emission limit used in the potential to emit calculations, while the PSD permit itself allows twice as much PM10 emissions under the BACT determination.<sup>174</sup> The Final PSD Permit should be modified to reflect a filterable PM10 BACT limit for coal charging of no more than 0.0040 lb/ton.

**G. The BACT Determination For Particulate Matter Emissions From Coke Pushing Is Inconsistent With The Definition Of BACT**

Coke pushing is the process of moving coke out of the ovens. This process also generates particulate matter that must be controlled: “. . . fugitive emissions will be produced as the coke mass drags across the oven floor into the hot car, regardless of whether the coke oven was charged with compacted coal or loose coal.”<sup>175</sup> The BACT analysis concluded that “BACT is flat car pushing, which represents an Inherently Lower Polluting Process. Flat car pushing technology will meet the MACT emission limitation of 0.04 lb of filterable PM10 per ton of coke pushed (), required under 40 CFR 63.7290.”<sup>176</sup>

This BACT determination suffers from the same legal inadequacies<sup>177</sup> as discussed above for coal charging: (1) unsupported; (2) incomplete; (3) misuse of

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<sup>173</sup> Comments 156, 170; 6/09 Application, Appendix C, p. 73 of 327 (using 0.0040 lb/ton to estimate 0.69 lb/hr and 3.0 ton/yr) and Final Part 70 Permit, Emission Rates for Criteria Pollutants (Sources COK-101 and COK-201 0.69 lb/hr and 3.0 ton/yr).

<sup>174</sup> PDS, at 117.

<sup>175</sup> Comment 159. See lack of response at RTC 160 and RTC 158 (Fugitive emissions would be lower, but does not deny their presence.).

<sup>176</sup> PDS, p. 61. See also 6/9 Application, at 3-50.

<sup>177</sup> See Comments 158–163.

inherently lower-polluting processes to avoid BACT; (4) failure to consider combinations of control options; (5) failure to address lower emissions limits; and (6) failure to set BACT prior to start of construction.<sup>178</sup> LDEQ made the same arguments for not using conventional collection hoods and a baghouse for coke pushing as it made for coal charging. Thus, Zen-Noh incorporates the analysis of coal charging into this claim by reference, except for the issues discussed below, which are unique to coke pushing.

Flat car pushing is just the flip side of compacted coal charging. It involves the removal of compacted coal that has been coked on the other side of the coke ovens. The LDEQ explains the benefit: “The advantage of flat car pushing . . . is that the mass of coke in the oven stays intact and a large dust plume is not generated.”<sup>179</sup> Thus, LDEQ is arguing that coal compaction satisfies BACT not only on the charging side, but also on the pushing side, or the opposite side of the coke ovens.

First, unlike coal charging, the BACT analysis for coke pushing ranks the selected BACT technology, flat car pushing, as the top technology. However, the LDEQ BACT analysis fails to include any combinations of control options in Steps 2 to 4.<sup>180</sup> The Application acknowledges that a traveling collection hood and baghouse “could further reduce emissions . . .” but declines to require it, suggesting it is not cost effective.<sup>181</sup> Similarly, in its responses to comments, the LDEQ suggests that the use of additional add-on controls was ruled out on the basis of economic considerations.<sup>182</sup> Thus, LDEQ

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<sup>178</sup> See, e.g., RTC 163, 169 which apply to both coal charging and coke pushing.

<sup>179</sup> PDS, p. 57.

<sup>180</sup> PDS, pp. 57–61, Comment 163.

<sup>181</sup> 6/09 Application, at 3-50.

<sup>182</sup> RTC 264.G (“Additionally, the applicant submitted an incremental cost effectiveness analysis for the addition of a traveling hood and baghouse, which exceeded \$50,000 per ton of additional PM controlled . . . LDEQ ruled out additional controls for coke pushing on the basis of economic considerations.”).

has failed to set an emission limit based on the maximum degree of reduction, as combinations of add-on and inherently lower-polluting controls achieve higher reductions than flat car pushing alone.<sup>183</sup>

Second, LDEQ concludes that flat car pushing meets the MACT limit of 0.04 lb/ton and thus concludes that BACT equals MACT.<sup>184</sup> As a factual matter, BACT in this case is a combination of add-on controls and inherently lower-polluting controls, which together would allow Nucor to meet a lower emission limitation than the MACT limit.<sup>185</sup> Potential to emit calculations in the Application, based on a vendor guarantee, are based on total filterable PM emissions of 0.03 lb/ton and filterable PM10 of 0.013 lb/ton,<sup>186</sup> or nearly four times lower than the Nucor BACT limit of 0.04 lb/ton. The BACT limit should be set no higher than 0.013 lb/ton filterable PM10, as assumed in the potential to emit calculations and the air quality modeling.

Third, LDEQ wrongly asserts that Nucor's permit requires it to meet the same limit as established for FDS.<sup>187</sup> The FDS permit states: "The emission limitation for pushing emissions under 40 CFR 63.7290(a)(4) is less stringent than the emission limitation established under OAC [Ohio Administrative Code] rules 3745-31-10 through

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<sup>183</sup> Comments 159, 160, 163.

<sup>184</sup> Comment 158, PDS, at 61 ("Flat car pushing technology will meet the MACT emission limitation of 0.04 lb of filterable PM10 per ton of coke pushed (0.08 lb PM10/ton coke total PM10), required under 40 CFR 63.7290. Thus, BACT will not be less stringent than MACT."); Final PSD Permit, Specific Conditions, at 117 (setting a BACT emission limit of 0.04 lb/ton coke pushed based on the assumption that "flat car pushing technology will meet MACT emission limitation of 0.04 lb of filterable PM10 per ton of coke pushed required under 40 CFR 63.7290.") Both of these conclusions are based on the factually wrong assumption that the MACT limit is expressed as filterable PM10. The MACT limit for coke pushing is expressed as total filterable PM.

<sup>185</sup> Comments 159, 160, 163.

<sup>186</sup> 6/09 Application, Appendix C, at 76 of 329, Coke Oven Pushing emissions: 1.63 lb/hr PM10/126 ton coke/hr = 0.013 lb PM10/ton coke.

<sup>187</sup> RTC 163, at 126 ("Despite the fact that Nucor's permit does not require add-on control, Nucor must meet the same limit as that established for FDS. Similarly, the flat car pushing technology must meet the particulate standards imposed by 40 CFR 63 Subpart CCCCC.").

20.” The FDS BACT analysis established a BACT emission limit of 0.03 lb/ton for filterable PM, based on negative pressure ovens with flat bed pushing and fabric filter with traveling hood.<sup>188</sup> This compares with the equivalent Nucor filterable PM10 limit of 0.09 lb/ton, calculated assuming 43.3% of the filterable particulate is PM10.<sup>189</sup>

Fourth, the Application identified two facilities with lower filterable PM limits, Haverhill North (0.039 lb/ton) and FDS (0.030 lb/ton).<sup>190</sup> The record does not explain why these lower limits do not establish BACT.<sup>191</sup> Further, the Inland Steel Co. was issued a permit for coke pushing at 0.02 lb/ton, thus contradicting LDEQ’s claim that its analysis was thorough.<sup>192</sup>

Finally, there are worrisome inconsistencies between the Final PSD Permit and the Final Part 70 Permit. The Part 70 Permit sets a limit on total suspended particulate from coke pushing at  $\leq 0.04$  lb/ton of coke in Conditions 32 and 119. The BACT limit, on the other hand, is found in Conditions 40 and 127, stated as: “BACT has determined that the capture system is compacted coal pushed onto a traveling flat car.”

The PSD Permit, in a third wrinkle, sets the BACT limit for coke pushing at 0.04 lb/ton of PM10, a different pollutant, and in a footnote concludes that “LDEQ has determined that flat car pushing technology will meet the MACT emission limitation of

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<sup>188</sup> FDS PTI, at 20 and FDS Revised Staff Determination at pdf 19.

<sup>189</sup> The potential to emit calculations assume that 43.3% of the filterable PM is PM10. See 6/9 Application, Appendix C, p. 76 of 329, Coke Oven Pushing. Thus, the Nucor BACT limit of 0.04 lb/ton filterable PM10 corresponds to  $0.04/0.433 = 0.092$  lb/ton.

<sup>190</sup> Comment 161; 6/09 Application, Table 3-4-8, at 3-47 and supporting permits.

<sup>191</sup> RTC 161.

<sup>192</sup> Comment 146 and RTC 146.

0.04 lb of filterable PM10 per ton of coke pushed required under 40 CFR 63.7290.”<sup>193</sup>

The MACT limit is expressed as total suspended particulate.

As noted elsewhere, PM10 does not equal PM. For coke pushing, about 43.3% of the PM is PM10. The corresponding limit on total suspended particulate is 0.092 lb/ton. Thus, clearly, BACT does not equal MACT. The BACT limit, when converted to a total suspended particulate matter basis, is more than twice as high as levels set in other permits and relied on in LDEQ’s potential to emit calculations.

#### **H. The BACT Determination For Coke Quenching Is Inconsistent With The Definition Of BACT**

The hot coke from the coke oven is positioned beneath one of the quench towers. The coke is quenched with water to prevent it from burning on exposure to air. This converts the water to steam and entrains a large amount of coke particles. The hot steam generated from quenching plus entrained particulate matter is channeled by natural draft up the tower. Baffles and sprays in the tower knock out water and associated particulate matter.

A quench tower removes particulate matter that is released when hot coke is cooled with water. The LDEQ concluded that BACT for PM10/PM2.5 emissions from the quench tower is a conventional quench tower and a limit on total dissolved solids in the cooling water.<sup>194</sup> Petitioners commented that LDEQ’s BACT analysis had failed to include two control technologies that have been demonstrated to achieve much lower

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<sup>193</sup> This is likely an error, as the MACT limit is expressed as total suspended particulate.

<sup>194</sup> PDS, pp. 62-64.

emissions – Coke Stabilization Quenching or CQS and dry quench towers. Petitioners introduced substantial evidence into the record supporting this comment.<sup>195</sup>

In response, LDEQ claims “LDEQ obtained confirmation from the vendor Uhde that Coke Stabilization Quenching (CSQ) is only possible with byproduct recovery coke ovens because it requires a loose bed of coke which is permeated with cooling water and steam from the bottom as well as from the top.”<sup>196</sup>

Petitioners have not previously had an opportunity to respond to LDEQ’s characterization of Coke Stabilization Quenching, as this response was made after the close of the public comments. LDEQ claims that CSQ is only possible with “byproduct recovery coke ovens.” This is misleading. Quenching consists of two steps: (1) cooling the hot coke with water, or quenching, and (2) removing particulate matter that is entrained during cooling and released to the atmosphere. The first step generates emissions by spraying cooling water on the hot coke. These emissions are directed through a tower containing baffles and sprays to control the particulate matter, or the quench tower.

Petitioners identified a more efficient method to control the emissions from quenching, using a more efficient quench tower. The LDEQ distinguishes Nucor’s coke ovens from those where CSQ has been used based on the method of cooling: “Coke Stabilization Quenching (CSQ) is only possible with byproduct recovery coke ovens because it requires a loose bed of coke which is permeated with cooling water and steam from the bottom as well as the top.”<sup>197</sup>

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<sup>195</sup> Comment 266.B. *See* documents submitted with Petitioner’s comments dated May 3, 2010.

<sup>196</sup> RTC 266.B.

<sup>197</sup> RTC 266.B.



The supporting e-mail from Uhde, the vendor, which LDEQ apparently relies on, focuses solely on the quenching method as the distinguishing factor and does not address the subsequent control of the resulting emissions in the overlying quench tower.<sup>198</sup>

Further, Uhde notes that the subject process is “normally” applied to a different type of oven, but does not exclude other applications.<sup>199</sup>

This is not responsive as Petitioners did not recommend a different method of cooling but rather a different method of controlling particulate matter resulting from cooling. Regardless, Strata observed that the compacted coke bed “will likely break apart during quenching – otherwise water would not be able to cool the hot material. When this happens, emissions will be entrained in steam and carried upward through the quench tower, similar to conventional quenching.”<sup>200</sup>

A quench tower is not an off-the-shelf technology. It is designed for specific applications. The low emission quench tower or a similar, more efficient tower designed with additional levels of baffles and sprays than the conventional tower selected by Nucor to satisfy NESHAPS, is a separate device that can be designed to operate with any type of quenching process. The steam plume and particulate generated by conventional quenching of a loose bed or quenching of a compacted slab of coke, as here, is similar and can be controlled by the same system of baffles and sprays discussed in Comment 266.B. The conventional NESHAPS tower is the BACT floor or starting point for a

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<sup>198</sup> EDMS Document No. 47563694, E-mail from Ulrich Terhaag, Uhde, to Tim Dessells and Brad True, Re: Quench Tower Baffles Comment, May 6, 2010 (referring to heat-recovery and byproduct coking processes, “quenching requirements are significantly different.”).

<sup>199</sup> EDMS Document No. 47563694, E-mail from Ulrich Terhaag to Brad True, GM, Re: Quench Tower Baffles Comment, May 3, 2010 (“Coke Stabilization Quenching is **normally** applied . . . so you have to quench from top and bottom at the same time. For Heat-Recovery Technology . . . the quenching process is just from the TOP . . .”) (emphasis added).

<sup>200</sup> RTC 175.

BACT determination, not the end of the analysis. Nucor did not evaluate more efficient quench towers.

In fact, Uhde's literature, cited in Petitioners May 3, 2010 comments (at footnote 240) makes this distinction between quenching and the control of the resulting emissions. This literature separately describes the Coke Stabilizing Quench, which is the method used to cool the hot coke, and the low emission wet quench tower, which removes entrained particulate. The latter was proposed by Petitioners as BACT for the quench towers.<sup>201</sup>

Regardless, if the selection of compacted coke precludes the use of more effective controls for quenching, coke pushing, and coal charging, then coal compaction cannot be selected as BACT for these processes. The permit should be remanded for a new BACT determination that considers coal compaction, coal charging, and coke pushing together to demonstrate that the definition of BACT is satisfied. A single process, coal compaction, under the top down BACT process, cannot be used to eliminate more efficient control technologies in downstream processes.

#### **IV. LDEQ Completely Failed to Require BACT for Major Sources of Pollutants**

In a number of instances, LDEQ completely failed to require BACT analysis for regulated pollutants, despite the fact that Petitioners identified major sources of the pollutants in the proposed Facility.

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<sup>201</sup> Uhde Corp. of America, Uhde Expertise in Coke Making: Controlling Particulate Emissions from Coke Oven Plants, ICAC, Chicago, March 24, 25, 2010, at 13–15, *available at* [http://www.ladco.org/about/general/Emissions\\_Meeting/Terhaag\\_032510.pdf](http://www.ladco.org/about/general/Emissions_Meeting/Terhaag_032510.pdf).

**A. LDEQ failed to require BACT for emissions from the coke ovens during HRSG bypass events and FGD absorber bypass events.**

The Administrator must object because the Permit does not impose BACT for control of emissions from coke ovens at the Facility during HRSG unit maintenance downtime or FGD absorber bypass events, despite the fact that the HRSG bypass events and FGD spray absorber bypass emissions will be a major source of regulated NSR pollutants. Under Title I, Part C, 42 U.S.C. §§ 7470-7479 (“PSD”) and the SIP, LDEQ may not issue the PSD Permit unless the coke oven emissions during HRSG bypass events and FGD spray absorber bypass events are subject to BACT. *See* 42 U.S.C. § 7475(a); La. Admin. Code 33:III.509.

The coke ovens are intended to operate 24-hours per day, 365-days per year, with no intended routine or annual shutdown for maintenance. Each of the two coke oven batteries will include five HRSG units and one FGD unit. The HRSG units serve to produce steam and to reduce the temperature of the coke oven gases so that the heat will not destroy the bags in the FGD baghouse. The coke oven gas is corrosive, so it will be necessary to shut down each HRSG unit every year. When a HRSG unit is shut down for maintenance, the coke ovens that vent to that HRSG unit will be emitted directly to the atmosphere through a bypass vent, without any air pollution control. According to the Part 70 Permit, each of the ten HRSG units will be bypassed for eight days per year, for a total of 80-days each year of HRSG bypass venting.

The HRSG bypass events will be a major source of SO<sub>2</sub> and will also cause significant increases of emissions of PM<sub>10</sub>, SO<sub>2</sub>, lead and sulfuric acid mist. The FGD spray absorber bypass emissions will cause a significant increase in emissions of SO<sub>2</sub>. Under PSD and the SIP, LDEQ may not issue the PSD Permit unless the coke oven

emissions during HRSG bypass events and FGD spray absorber bypass events are subject to BACT.<sup>202</sup> LDEQ's general practice for BACT determinations is to follow the "top-down" BACT procedure described in the Draft New Source Review Manual ("NSR Manual") published by EPA.<sup>203</sup> Accordingly, BACT for these maintenance emissions must follow the "top-down" approach presented in the NSR Manual. The BACT determination must also be made available for public review and comment.<sup>204</sup>

The Application and Supplemental Information do not include any analysis of BACT for the coke oven emissions during HRSG bypass events or FGD spray absorber bypass events. The proposed PSD permit does not include any determination of BACT for the coke oven emissions during HRSG bypass events or FGD spray absorber events. The Basis for Decision does not include any discussion of BACT for the coke oven emissions during HRSG bypass events or FGD spray absorber events.

Zen-Noh previously commented that LDEQ must conduct a proper, top-down BACT determination for coke oven emissions during HRSG bypass events and FGD spray absorber bypass events, in November 2008, April 2010 and May 2010. Uhde, the coke oven vendor for the Facility, and Dr. Michael Jennings, provided opinions that larger, spare or redundant HRSG units are technically feasible for control of coke oven emissions during HRSG bypass events and should be considered BACT. Spare or redundant HRSG units would completely eliminate HRSG bypass vent emissions. LDEQ responded that Uhde presented an accurate assessment of the financial feasibility of

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<sup>202</sup> *Alaska Dept. of Env't'l Cons. v. EPA*, 540 U.S. 461, 484-86 (2004) (state has no authority to issue PSD permit that does not incorporate BACT requirements developed in accordance with PSD)

<sup>203</sup> See RTC, pp. 77, 92, 100-101, 103-105, 115-16, 216-18, and 262-64.

<sup>204</sup> 42 U.S.C. § 7475(a)(2).

installing spare HRSG units,<sup>205</sup> but paradoxically also states that “no control technologies for the bypass of HRSG emissions has been demonstrated or is available.”<sup>206</sup>

LDEQ states that the “PSD permit clearly outlines all applicable determinations for why spare HRSG’s were not selected as BACT.”<sup>207</sup> The PSD Permit does not outline or even mention any determinations for why spare HRSG units were not selected as BACT. As Zen-Noh noted in its previous comments, it is technically feasible to control coke oven emissions during FGD spray absorber bypass events by providing spare or redundant spray absorbers with the capacity to treat 100% of the coke oven gas for the battery with no loss in efficiency. Properly sized spare or redundant spray absorbers would completely eliminate increased emissions during FGD absorber bypass events. LDEQ claimed that instead of being designed to be capable of treating 100% of the coke oven gas, the spray absorbers are designed to control only 70-80% of the total coke oven gas.<sup>208</sup> But LDEQ did not provide any technical reason that would prevent the FGD units from being designed to be capable of treating 100% of the coke oven gas when one of the spray absorbers is shut down for maintenance.<sup>209</sup>

In addition, the BACT determination for coke oven emissions should be but is not based on all the emissions removed by the selected technologies, including sulfuric acid mist and emissions during HRSG bypass events and FGD absorber bypass events.<sup>210</sup> To support the position that BACT is not required for coke oven emissions during HRSG

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<sup>205</sup> RTC, p. 86.

<sup>206</sup> *Id.*, pp. 84-85.

<sup>207</sup> RTC, p. 85, 115.

<sup>208</sup> RTC, pp. 287-88; 405-409

<sup>209</sup> *Id.*, pp. 294-95.

<sup>210</sup> RTC, pp. 293-94

bypass events, LDEQ analogizes emissions from the Uhde-designed coke ovens to emissions from the coke ovens at facilities in Haverhill, Ohio and Middletown Ohio, which are designed by SunCoke.<sup>211</sup> However, to support the position that BACT is not required for sulfuric acid mist and hydrochloric acid emissions, two pollutants that the coke ovens in Haverhill and Middletown emit in significant quantities, LDEQ states that the Uhde and SunCoke technologies are different and that emissions from the two technologies cannot be compared.<sup>212</sup>

Moreover, even if EPA believes that LDEQ did make a BACT determination for coke oven emissions during HRSG bypass and FGD absorber bypass events, which it did not, the BACT determination did not comply with the CAA because the baseline emission rate against which to determine whether it is cost effective to control emissions from the coke ovens 365 days per year is the annual potential to emit of the coke ovens, not the emissions that would be vented through the during HRSG bypass vents.<sup>213</sup>

**B. LDEQ failed to require BACT or an air quality impact analysis for emissions of sulfuric acid mist from the coke ovens.**

LDEQ issued the PSD Permit without subjecting sulfuric acid mist emissions from the coke oven emissions to BACT, in violation of PSD and the SIP. The Nucor Permits do not include any emission rates, BACT determination or air quality impact analysis for sulfuric acid mist from the coke ovens. Thus, none of these required elements were made available for public review and comment. Zen-Noh provided evidence, based on actual stack test data at the Haverhill North Coke facility in Ohio, that

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<sup>211</sup> RTC, pp. 84-87, 291-94.

<sup>212</sup> See Response to Comments, pp. 75, 281-88.

<sup>213</sup> See Comment 264.

the coke ovens at the Facility will emit a significant amount of sulfuric acid mist.<sup>214</sup> LDEQ failed to provide reasoned and individualized responses supported by the evidence to these comments.<sup>215</sup>

LDEQ failed to provide a reasoned basis supported by evidence for its decision not to require BACT or an air quality impact analysis for sulfuric acid mist emissions. LDEQ states that it has not determined whether sulfuric acid mist will be emitted from the coke ovens. However, the BACT determination for PM<sub>2.5</sub> in the PSD Permit states:

A fraction of the sulfur in the gas may be combusted to form ionized SO<sub>3</sub> at the high temperatures of the coke oven process. These SO<sub>3</sub> radicals are known to combine with moisture to form sulfuric acid mist, which may contribute to PM<sub>2.5</sub> emissions from the coke ovens in a secondary manner. An effective control strategy for PM<sub>2.5</sub> emissions from the coke ovens should also address the need to reduce emissions of SO<sub>3</sub>.<sup>216</sup>

LDEQ also relies on supposedly different operating conditions between the SunCoke-designed coke ovens and the Uhde-design to justify not requiring Nucor to quantify sulfuric acid mist emissions from the coke ovens, apply BACT and perform an air quality impact analysis, but there is no evidence in the record of what actually are the operating or process differences or how they would explain why the coke ovens at the Facility will not emit sulfuric acid mist even though the SunCoke coke ovens emit significant quantities of sulfuric acid mist.<sup>217</sup> LDEQ states that whether BACT is required for sulfuric acid mist emissions from the coke ovens cannot be determined until after the Facility is constructed and a performance test is completed.<sup>218</sup> PSD and the SIP

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<sup>214</sup> Comment 264.A.

<sup>215</sup> RTC, p. 159.

<sup>216</sup> See Final PSD Permit.

<sup>217</sup> RTC, pp. 75, 281-88.

<sup>218</sup> RTC, pp. 287-88.

do not allow LDEQ to wait until after a facility is constructed to determine whether to require a complete PSD analysis—including BACT, an air quality impact analysis, and preconstruction monitoring.

**C. LDEQ unlawfully issued the PSD Permit without requiring BACT or an air quality impact analysis for emissions of H<sub>2</sub>S.**

LDEQ issued the PSD Permit without subjecting H<sub>2</sub>S emissions to BACT or preparing, for public review and comment, a complete air quality impact analysis for H<sub>2</sub>S, in violation of PSD and the SIP. The PSD Permit does not include any BACT determination for emissions of H<sub>2</sub>S. The Part 70 Permit does not include any emission limitations for H<sub>2</sub>S emissions from the slag granulation process.

Zen-Noh previously provided evidence that H<sub>2</sub>S emissions from the Facility, particularly the slag processing area, will be significant, that Nucor did not adequately quantify emissions of H<sub>2</sub>S, and that condensation is an available control technology to reduce H<sub>2</sub>S emissions from slag processing.<sup>219</sup> LDEQ responds, without explanation, that Zen-Noh did not substantiate the claim that H<sub>2</sub>S will be emitted from the slag granulation process in significant quantities.<sup>220</sup> LDEQ references vendor-provided data, but the vendor-provided data apparently did not discuss H<sub>2</sub>S emissions and LDEQ did not make the vendor-provided data or other literature available for public review and comment.<sup>221</sup>

However, in subsequent comments, Zen-Noh goes a step further and actually quantifies H<sub>2</sub>S emissions using measurements made at 14 slag granulation units in Europe.<sup>222</sup> Zen-Noh's calculations demonstrate that the granulation tanks alone would

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<sup>219</sup> *E.g.*, Comment 282.

<sup>220</sup> RTC, pp. 76, 281-88; 373-75.

<sup>221</sup> RTC, p. 76.

<sup>222</sup> Comment 282.



emit 95 ton/yr of H<sub>2</sub>S. This exceeds the PSD significance threshold of 10 ton/yr, requiring PSD review for H<sub>2</sub>S. In response, LDEQ cites to its responses to comments 63 and 94. Neither of these comments addresses Zen-Noh's calculations in Comment 281, but rather address its initial comment 63 on this issue, which did not include supporting calculations, and comment 93, which is on an entirely different topic. Thus, Zen-Noh's H<sub>2</sub>S emission calculations stand un rebutted.

In response to evidence that water suppression actually increases H<sub>2</sub>S emissions from slag granulation processes, LDEQ states, again without evidence and without making a BACT emissions limitation determination, that H<sub>2</sub>S emissions will be controlled because "some cooling water is sprayed near the top of the vessel to knock down rising steam."<sup>223</sup> Because LDEQ did not require Nucor to completely quantify H<sub>2</sub>S emissions, the air quality dispersion modeling and air quality impact analysis for H<sub>2</sub>S do not adequately describe the potential affects of those emissions.

**D. LDEQ failed to require BACT/ MACT or an air quality impact analysis for emissions of dioxins.**

The Public Hearing Packet and Permits do not include any BACT or MACT determination or emission limitations for emissions of dioxins from the Facility. Dioxins and furans are toxic air pollutants under LAC 33:III chapter 51 (the "TAP Rule"). LDEQ failed to provide a reasoned basis supported by evidence for its decision not to require BACT or perform a complete air quality impact analysis for dioxin emissions.

Zen-Noh presented evidence to LDEQ that sinter plants are significant emissions sources of dioxins.<sup>224</sup> A number of other parties also submitted comments to LDEQ

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<sup>223</sup> RTC, pp. 90-91.

<sup>224</sup> Comment 265.C.

regarding dioxins. LDEQ failed to provide reasoned and individualized responses supported by the evidence to comments regarding dioxin emissions. In response to comments that the October 2008 draft permits did not include emissions of dioxins, LDEQ reported that Nucor had calculated dioxin and furan emissions, assuming a 96% control efficiency for the MEROS system, but left them out of the permits due to an “inadvertent error.”<sup>225</sup> LDEQ also claimed, without providing any technical supporting documentation, that the MEROS system to be installed at the Facility will achieve 97% control of dioxins and furans.<sup>226</sup>

LDEQ issued the Nucor Permits without subjecting dioxin emissions to appropriate control requirements and without preparing, for public review and comment, a complete air quality impact analysis for dioxin emissions based on enforceable emission limits, all of which violate the TAP Rule. The proposed PSD permit did not include any BACT or MACT determination or air quality impact analysis for dioxins. The proposed Part 70 permit contained an emission limit for emissions of furans from the sinter plant but did not include any limit for emissions of dioxins from the sinter plant. The Statement of Basis presented dispersion modeling results for dioxins but not furans. LDEQ stated that the emission limit and air quality modeling both should have been reported as both dioxins and furans, without any technical demonstration that the reported emissions and air quality modeling actually represented both dioxins and furans.<sup>227</sup> LDEQ stated that the Part 70 permit would be revised accordingly.<sup>228</sup> Still, the PSD

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<sup>225</sup> RTC, pp. 75-76.

<sup>226</sup> RTC, pp. 97-98.

<sup>227</sup> RTC, pp. 312-16, 390-92

<sup>228</sup> *Id.*

Permit and Part 70 Permit do not contain any emission limitations for dioxins.<sup>229</sup> As such, there is no enforceable emission limit for dioxin emissions from the sinter plant, under PSD or otherwise. The air quality modeling and impact analysis for dioxin emissions may not rely on any control by the MEROS system.

**E. LDEQ Failed to Require BACT For NO<sub>x</sub>, SO<sub>2</sub>, CO, And VOC Emissions From Coke Pushing**

Petitioners noted there was no BACT analysis for NO<sub>x</sub>, SO<sub>2</sub>, CO, and VOC emissions from coke pushing.<sup>230</sup> The LDEQ did not respond to this comment, but refers to unrelated matters.<sup>231</sup>

The LDEQ concluded that BACT for NO<sub>x</sub>, SO<sub>2</sub>, CO, and VOC emissions from coke pushing is compacted coal and flat car pushing, as it represents “an Inherently Lower Polluting Process.” The LDEQ did not perform Steps 1-5 of a top-down BACT analysis, but rather rests its case solely on the use of “an Inherently Lower Polluting Process.” This is the same erroneous argument used to set BACT for particulate emissions for coal charging and coke pushing, discussed *supra*, but even more egregious here as the BACT analysis does not identify **any** control options other than compacted coal and flat car pushing.<sup>232</sup> We incorporate our previous discussion of this issue here, as the issues are identical.

All control options must be listed in Step 1 under the top-down process used by LDEQ. Other control options are available for coke pushing and should have been evaluated alone and in combination with BACT controls. These include work practices

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<sup>229</sup> See Part 70 Permit, p. 5.

<sup>230</sup> Comment 165.

<sup>231</sup> RTC 165 (referring to RTC 158 and 169).

<sup>232</sup> PDS, pp. 61-62.

(widely used), low sulfur coal, and a wet scrubber or carbon bed absorber designed to capture the pollutants. Further, the compacted coal process selected as BACT actually increases VOC emissions by adding a binding agent, such as tar, to maintain the shape of the coal and thus should not be claimed as a control option for VOCs. The binding agent increases VOC emissions,<sup>233</sup> which should have been explicitly considered in a collateral impact analysis, but was not.

The LDEQ then sets emission limitations on each pollutant with no support.<sup>234</sup> The LDEQ's response to this comment<sup>235</sup> does not address the lack of support for the BACT emission limits, which remain unsupported in the record, and are inconsistent with those estimated in potential to emit calculations in the Application.

**F. LDEQ Failed To Require BACT For NO<sub>x</sub> Emissions From The Top Gas Fired Boilers**

The BACT analysis concluded that BACT for the topgas-fired boilers is “no additional controls beyond the low-NO<sub>x</sub> fuel combustion technology inherent to the topgas boiler design.” Topgas is blast furnace gas. The BACT limitation is then established as 0.06 lb/MMBtu fuel with no support.<sup>236</sup> These boilers are projected to emit 527.4 ton/yr of NO<sub>x</sub> and are the major source of NO<sub>x</sub> emissions from the proposed facility. Petitioners commented that BACT for these boilers should be an emission limitation achieved using a selective catalytic reduction (SCR) control system, designed to remove 90% of the NO<sub>x</sub>, for the reasons set out below.<sup>237</sup>

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<sup>233</sup> Comment 169 and RTC 169.

<sup>234</sup> Comment 165.

<sup>235</sup> RTC 165 referring to RTC 158, 169

<sup>236</sup> PDS, p. 24.

<sup>237</sup> Comment 283.

LDEQ's BACT analysis rejected SCR as infeasible due to low inlet NOx concentrations and large swings in available flue gas volume.<sup>238</sup> Petitioners explained why these arguments were invalid, citing to specific cases where SCR has been successfully used in the similar applications.<sup>239</sup> The LDEQ ignored this information. The response to comment 283 is silent on this relevant experience, which should have triggered a new BACT analysis.

As to NOx inlet concentration, Petitioners explained that the range expected for Nucor's boilers is not an issue for SCR. The NOx concentration at the inlet determines the amount of catalyst required to achieve a given outlet concentration, not the feasibility of SCR. LDEQ did not respond to this issue.

As to large swings in flue gas volume, Petitioners explained that SCRs on similar sources routinely operate with large volume swings. Regardless, the flow swing issue is a red herring as Nucor plans to operate the topgas boilers as base load units and to supplement the top gas with natural gas to maintain steady load. Thus, the gas flow to the boilers and downstream SCR will be constant.<sup>240</sup> The SCR catalyst would not see any volume swings. LDEQ also did not respond to this issue.

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<sup>238</sup> PDS, p. 22.

<sup>239</sup> See Comment 283 n.76, which is omitted from LDEQ's summary (citing Austrian Energy & Environment Experience List, pdf 6, VA-Stahl Block 03 Industry Boiler, *available at* [http://aeeronroll.thomasnet.com/Asset/referenzblaetter-ET\\_eng.pdf](http://aeeronroll.thomasnet.com/Asset/referenzblaetter-ET_eng.pdf); Voest Alpine Linz Blast Furnace Gas Incineration (startup in 1990 and 1994, DeNOx/SCR at several units with a NOx removal efficiency of >90%), *available at* <http://aee-group.com/references/view.php?search=action&company=0&lang=eng&producttype=-1&region=1&10&&side=14&>). See also Takashi Kiga and others, Development of Blast-Furnace Gas Firing Burner for Cofiring Boilers with Pulverized Coal, In: Raj Gupta, T. Wall, L. Baxter (Eds), Impact of Mineral Impurities in Solid Fuel Combustion, 1999.

<sup>240</sup> RTC 283, p. 377 ("As base load units, the boilers will be required to provide a steady output of electricity at all times...During periods of reduced blast furnace gas supply, the balance of the heat load must be made up with natural gas in order to meet the base load demand requirements.")

In its response to comment 283, the LDEQ argues for the first time that SCR would not be cost effective for topgas boilers due to fuel cost alone, pointing to an analysis prepared by Nucor. The LDEQ for the first time claims that this Nucor analysis indicates that SCR “clearly met thresholds of infeasibility due to economic and energy considerations...”<sup>241</sup> However, no support is provided for how LDEQ reached this conclusion, which is at odds with the cited cost analysis. The subject cost analysis does not meet the fundamental requirements of a cost analysis under the top down BACT process. It does not identify control system battery limits, vendor supplied design parameters, or comparative costs born by other similar sources. These are all essential ingredients of BACT cost analyses. The absence of this type of information has routinely led to permit remands that relied on costs to reject a top-ranked control option.<sup>242</sup>

**G. LDEQ Failed To Require BACT For Storage-Pile Material Handling**

Earth-moving equipment, such as front end loaders and bulldozers, are used on storage piles. These generate fugitive dust, including PM, PM10, and PM2.5. Petitioners commented that LDEQ’s BACT analysis had not included emissions from this earthmoving equipment. Petitioners further commented that Nucor’s emission calculations excluded emissions from earth-moving activities on the piles, thus underestimating modeled ambient air concentrations.<sup>243</sup> The LDEQ does not respond to the absence of a BACT determination and emission calculations for these activities.

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<sup>241</sup> RTC 283, p. 377.

<sup>242</sup> See the EAB cases cited throughout these comment and the NSR Manual, Sec. IV.D.2.a.

<sup>243</sup> Comment 283.

Rather, LDEQ argues that only two storage piles can be used simultaneously and clarifies modeling issues.<sup>244</sup>

In response to other comments, LDEQ cites to a Dust Management Plan as evidence that its BACT determinations for unpaved and paved roads are enforceable.<sup>245</sup> This document contains a section on “Storage Pile Stacking, Reclaiming and Maintenance,” which explains as follows: “Storage pile shape and residual material not reachable by reclaiming machines must be managed with earth moving equipment such as bulldozers and front-end loaders. The action of this equipment has the potential to generate dust emissions as materials are disturbed and equipment moves in unpaved areas.”<sup>246</sup> This proves the existence of these emissions from Nucor’s piles. Nucor and LDEQ did not prepare a BACT analysis for these emissions nor estimate their magnitude and include them in its air quality modeling.

#### **H. LDEQ Failed To Require BACT For Paved and Unpaved Roads**

Petitioners commented that LDEQ had failed to consider all feasible control technologies for paved and unpaved roads.<sup>247</sup> The LDEQ responded by citing to its responses to other comments, including Response to Comment Nos. 117, 267.A, 267.B, and 267.C.<sup>248</sup> However, none of these responses address the failure of the BACT analyses to consider all feasible control options. Thus, Petitioners’ comments as to the adequacy of the BACT analysis for paved and unpaved roads remains unrebutted.

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<sup>244</sup> RTC 263.I, 266.C, 284. LDEQ also cites to responses to two comments that do not exist: RTC 276.A and 276.D.

<sup>245</sup> RTC 117, 258.C.2, 263.J, 267.C, 285.

<sup>246</sup> 6/09 Application, Appendix J, NSLA Dust Management Plan, June 2009, cited by LDEQ in RTC 117, 258.C.2, 263.J, 267.C, and 285.

<sup>247</sup> Comments 285.

<sup>248</sup> RTC 285.

**V. LDEQ failed to require reliable ambient air quality modeling to ensure that the Facility's emissions will not cause an exceedance of a NAAQS or PSD increment.**

As Zen-Noh pointed out repeatedly to LDEQ in its previous comments,<sup>249</sup> the data relied on by Nucor in its air quality dispersion modeling is flawed in a number of ways that render the results of the modeling inconsistent, unreasonable and unreliable. It is LDEQ's responsibility to determine whether Nucor used appropriate input data and followed recommended procedures to complete its air quality analysis.<sup>250</sup> LDEQ's failure to ensure that the emissions calculations in the Permits are based on proper, reliable modeling methods renders it impossible for LDEQ, the EPA, or any member of the public, to determine whether emissions from the Facility will result in an exceedance of a NAAQS or PSD increment. Accordingly, the Administrator must object.

The modeling flaws Zen-Noh previously raised with LDEQ include:

- Meteorological data used by Nucor included an unreasonable number of calm wind hours.<sup>251</sup>
- Too much uncertainty for sinter plant dioxin and furan emissions and failed to evaluate health effects of dioxin emissions.<sup>252</sup>
- Improper modeling methods for determining road emissions.<sup>253</sup>
- Failure to use flag-pole receptors, despite the presence of elevated work platforms near the Nucor plant.<sup>254</sup>
- Incorrectly modeled coke oven charging and pushing emissions.<sup>255</sup>

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<sup>249</sup> Comments 88, 89; *see also* Comments 268, 277.

<sup>250</sup> NSR Manual at C.25.

<sup>251</sup> Comment 268.C.

<sup>252</sup> Comment 265.C

<sup>253</sup> Comment 267

<sup>254</sup> Comment 268.A

<sup>255</sup> Comment 277.C.



- Modeling relies on unreliable exit velocities and other dispersion techniques.<sup>256</sup>
- Nucor used the wrong PM2.5 background for its modeling.<sup>257</sup>
- Nucor failed to properly model HRSG Bypass and FGD Bypass Emissions<sup>258</sup>
- LDEQ should not have allowed Nucor to include the long-gone Helvetia Sugar Cooperative PM10 emissions as a huge negative PM10 “sink” in order to comply with the PSD increment.<sup>259</sup>
- Failure to make available to the public air quality impacts taking into account cumulative effects of all emission rates and model protocol comments.<sup>260</sup>

LDEQ has not required Nucor to remedy any of these modeling problems and its attempts to justify its failure to do so in its responses to these comments are generally unconvincing and against the weight of the evidence in the record.

#### **A. Calm Wind Hours**

With respect to LDEQ’s response to the meteorological data used by Nucor including an unreasonable number of calm wind hours,<sup>261</sup> Zen-Noh incorporates herein the comments set forth in the Sierra Club Petition.

#### **B. Dioxins and Furans**

LDEQ does not respond at all to the comment that dioxin and furan emissions are based on uncertain modeling methods.<sup>262</sup> In its response to the comment that LDEQ

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<sup>256</sup> Comment 268.B.

<sup>257</sup> Comment 268.D.

<sup>258</sup> *E.g.*, Comment 265.A, 265.C.

<sup>259</sup> Comment 268.E.

<sup>260</sup> Comment 278

<sup>261</sup> RTC 260.C.

<sup>262</sup> *See* RTC 265.C.

failed to assess the health risks associated with dioxin emissions, LDEQ remains silent on California's inhalation unit risk value for chlorinated dioxins. Using the California unit risk value, Nucor's modeled dioxin emissions (which are highly questionable) would cause 380 per million excess cancer risks. At  $0.00001 \mu\text{g}/\text{m}^3$  for chronic exposures, the excess cancer risk from chlorinated dibenzo-p-dioxins would be 380 per million ( $38 (\mu\text{g}/\text{m}^3)^{-1} * 0.00001 \mu\text{g}/\text{m}^3 * 1,000,000$ ). This is 380 times the one per million excess cancer risk usually allowed in regulatory settings of toxics.

LDEQ responds that "[t]he goal of the AAS list is to establish an excess risk goal of 1 in 10,000 as a minimum floor, where federal standards have not been developed, not to provide the final standards whose implementation are the responsibility of EPA. However, the established standard was designed for excess risk levels several orders of magnitude lower than that claimed by the commenter."<sup>263</sup> A one in 10,000 risk is also presented as a 100 per million risk, which is exceeded by the 380 per million excess cancer risks using Nucor's dioxin modeling and the California inhalation unit risk value.

### **C. Road Emission Modeling**

#### **1. Rainfall Correction**

LDEQ responded to the comment that the 24-hour fugitive PM10 emissions from unpaved and paved roads are calculated using an inappropriate rainfall correction by claiming that the rainfall correction used was actually "conservative."<sup>264</sup> However, Nucor applied a 1.15 "maximum emission rate factor" to their paved and unpaved emission rate calculations, not the 1.5 factor claimed by LDEQ. Thus, the 1.43 factor for

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<sup>263</sup> *Id.*

<sup>264</sup> RTC 267.B

rainfall correction that LDEQ admits is appropriate is not covered by the 1.15 “maximum emission rate factor” applied by Nucor.

Furthermore, the “maximum emission rate factor” is not specified to apply to the rainfall correction, but could apply to any other input parameter, including silt levels, fleet weight, vehicle miles traveled, and control efficiency. And Nucor did not model “separately calculated maximum hourly emission rates for these sources and used these emission rates for the purposes of the model” as LDEQ claims in its response.<sup>265</sup> Nucor only modeled annual average PM10 emission rates for the roads.

## 2. PM10 Control Efficiency

LDEQ responds to the comment that Nucor's assumption of 90% road dust control efficiency is overrated by stating that it believe the 90% level of control is achievable.<sup>266</sup> But LDEQ has no way to verify that the 90% control for both unpaved and paved roads will be achieved. Petitioners have listed a number of referenced control efficiencies in previous comments, all of which are lower than the very generous 90% assumed by Nucor.<sup>267</sup>

## 3. Flawed PM10 Modeling Methods

LDEQ defended its failure to require proper fugitive dust emission modeling.<sup>268</sup> But LDEQ is mistaken that increasing the number of volume sources would result in

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<sup>265</sup> *Id.*

<sup>266</sup> RTC 276.C

<sup>267</sup> *See also supra* at Section IV.H regarding BACT for road emissions.

<sup>268</sup> RTC 267.D

“prohibitively long model run times necessitated by a large number of volume sources.”

“Prohibitively” is an arbitrary term and increasing the number of volume sources has a minimal effect on AERMOD run times. For example, Nucor could focus on more volume sources and only the near-field receptors for this analysis, and thus reduce their modeling time to minutes per run.

LDEQ states in its response, “Nucor combined the paved vs. unpaved road emissions since it has not yet been decided which roads will be paved.”<sup>269</sup> This is a curious response since Nucor had to include paved and unpaved road emissions in determining fugitive dust emissions. Vehicle miles traveled, a key input to the emission calculations, depends on the length of unpaved and paved roads, which cannot be calculated unless Nucor knows which roads will be paved. LDEQ also responds that combining the paved and unpaved road emissions, and modeling them as 18 separate volume sources, is a conservative approach.<sup>270</sup> This is pure speculation on LDEQ’s part. LDEQ cannot make that claim without separating the paved and unpaved road emissions, modeling them covering the exact road locations, and including the corrected emission rates.

#### **D. Flag-pole Receptors**

LDEQ responds to the comment that it should have required Nucor to use flag-pole receptors to determine compliance with the NAAQS and PSD increments because there are elevated work platforms near the Nucor plant by claiming that Nucor is not

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<sup>269</sup> *Id.*

<sup>270</sup> *Id.*

required to demonstrate compliance with the PSD increment and NAAQS at flagpole receptors that do not represent public throughways. This is incorrect. Nucor's elevated access points are clearly included in the definition of "ambient air."<sup>271</sup>

#### **E. Coke Oven Modeling**

Zen-Noh previously commented that the air quality impact analyses LDEQ made available for public review and comment do not reflect actual impacts from the proposed facility or demonstrate that it will not cause violations of air quality standards, because Nucor incorrectly modeled coke oven charging and pushing emissions.<sup>272</sup> In response, LDEQ claims that coke oven charging and pushing emissions are adequately approximated by the modeled stacks and that they cannot be classified as fugitive emissions.<sup>273</sup> This is incorrect. Fugitive emission sources are those that aren't released from a stack, buoyant or not.

Fugitive particulate emissions are emitted by a wide variety of sources both in the industrial and in the nonindustrial sectors. Fugitive emissions refer to those air pollutants that enter the atmosphere without first passing through a stack or duct designed to direct or control their flow.<sup>274</sup>

In addition, LDEQ's claim that "emissions from the coke oven charging and pushing will originate from several distinct points best represented as currently modeled"<sup>275</sup> is incorrect. The singular points chosen by LDEQ appear arbitrary and cannot represent emissions that occur along an 800-meter long source. The modeled emissions represent the location of one specific coke oven, at best. All the other oven

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<sup>271</sup> Joseph A. Cannon, *Applicability of PSD Increments to Building Rooftops* (June 11, 1984).

<sup>272</sup> Comment 277.A.

<sup>273</sup> RTC 277.A

<sup>274</sup> C. Cowherd, G.E. Muleski, and J.S. Kinsey, *Control of Open Fugitive Dust Sources*, September 1988, at 1-1.

<sup>275</sup> RTC 277.B.

locations in the battery were not modeled. LDEQ must require representative modeling of all emissions from all coke oven charging and pushing operations at the Facility.

LDEQ questions the data upon which the Petitioners relied for their comments—LDEQ’s own data set (the “Baker Dataset”)—stating “[t]his data is inappropriate for this modeling analysis for several reasons. Unlike the Baton Rouge National Weather Service data, it has not been quality controlled for use in modeling applications.” LDEQ is wrong on this count. The Baton Rouge National Weather Service data is not quality controlled for modeling applications. It is quality controlled for landing airplanes. LDEQ has performed quality controls on their Baker data that make their data preferable for air modeling.

LDEQ states further:

[I]t is unclear how the commenter developed boundary layer parameters for this data. In the comments, the dataset is characterized as the "LDEQ 2005-2008 Baker Site Wind and Temperature Data," but it is unclear how this data was developed for AERMOD. The AERSURFACE and AERMET programs should be run for this data to develop boundary layer data representative of the site of the meteorological tower.<sup>276</sup>

Petitioners 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. Nucor did not use boundary data representative of the Baton Rouge airport met tower in their analysis – they used the generic values recommended by LDEQ.

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<sup>276</sup> RTC 277.

Lastly LDEQ claims that the Baker Dataset does not have any "calm" observations.<sup>277</sup> As a result, LDEQ claims, the commenter's use of an area source to represent coke oven charging and pushing emissions with a meteorological dataset biased towards low wind speeds results in unrealistically high pollutant concentrations.<sup>278</sup> Apparently, LDEQ is confused regarding their own data set. The Baker wind speed data are reported in whole miles per hour. The lowest non-zero wind speed is one mile per hour, not 0.1 mile per hour as LDEQ states in their response to comment. The lowest Baker wind speed we modeled was one mile per hour (about 0.45 meter per second).

LDEQ does not appear to have made *any* changes to the permit analysis based on the comments it received regarding modeling. The justifications offered are unconvincing and cannot cure the serious defects in the modeling, which serves as the primary foundation for the Part 70 Permit. In order to avoid a potential exceedance of a NAAQS or PSD increment, and to ensure that the CAA is not violated, the Administrator must object to the Permit and require that LDEQ base its permitting decisions on proper modeling.

**VI. LDEQ unlawfully issued the Permits without requiring preconstruction monitoring for PM10, SO2, H2S, TRS and sulfuric acid mist.<sup>279</sup>**

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<sup>277</sup> RTC 277.C ("The lowest observed wind speed is 0.1 knots (0.05 m/s). Therefore, any wind speed lower than 0.1 knots was recorded as 0.1 knots, instead of as calm. This means that the dataset is biased towards low wind speeds.").

<sup>278</sup> *Id.*

<sup>279</sup> Zen-Noh incorporates herein by reference the arguments set forth in the Sierra Club Petition regarding pre-construction monitoring.

LDEQ issued the Permits without requiring preconstruction monitoring for PM<sub>10</sub>, SO<sub>2</sub>, H<sub>2</sub>S, TRS and sulfuric acid mist and without preparing, for public review and comment, an air quality impact analysis including the results of preconstruction monitoring, all of which are required by PSD and the SIP. An air quality impact analysis must be performed and available for public review and comment before a PSD permit may be issued.<sup>280</sup> The analysis must include continuous air quality monitoring gathered over a period of one calendar year preceding the application date, unless LDEQ determines, in accordance with regulations adopted by EPA, that a complete and adequate analysis can be accomplished in a shorter period.<sup>281</sup> EPA regulations and the SIP require preconstruction monitoring data to be collected for a period no shorter than four months.<sup>282</sup> Preconstruction monitoring is not discretionary: it must be required and completed for all regulated NSR pollutants before the public hearing unless LDEQ specifically determines that emissions of a pollutant fall within an exemption listed in the regulation.<sup>283</sup>

The only pollutants that LDEQ found to be exempt from the preconstruction monitoring requirements are CO and lead.<sup>284</sup> PSD and the SIP require preconstruction monitoring for PM<sub>10</sub> and SO<sub>2</sub>. LDEQ states that the preconstruction monitoring requirement for PM<sub>10</sub> and SO<sub>2</sub> were met by a local monitor in the area of the Facility, but LDEQ does not identify the location of the local monitor, the period of time in which

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<sup>280</sup> 42 U.S.C. § 7475(a)(2) and (a)(6)

<sup>281</sup> § 7475(e)(2).

<sup>282</sup> 40 C.F.R. § 52.21(m)(1); LAC 33:III.509.M.1.

<sup>283</sup> LAC 33:III.509.I.

<sup>284</sup> See PSD Permit, p. 108.



data was collected from the local monitor, the pollutants monitored, or the air concentrations measured.<sup>285</sup>

Preconstruction monitoring is also required for H<sub>2</sub>S, TRS and sulfuric acid mist, unless LDEQ determines that emissions of those pollutants fall within a regulatory exemption.<sup>286</sup> LDEQ did not provide a reasoned basis supported by evidence explaining why any regulated NSR pollutants other than CO and lead should be exempt from the preconstruction monitoring requirement. By not requiring preconstruction monitoring for PM<sub>10</sub>, SO<sub>2</sub>, H<sub>2</sub>S, TRS and sulfuric acid mist, LDEQ issued permits in violation of PSD and the SIP.

Data from a monitoring station in Baton Rouge was used to represent background concentrations in the air quality modeling performed by Nucor. The Baton Rouge site is a “regional site” because it is located away from the area of interest, i.e. Convent, and there are no monitors located near Convent.<sup>287</sup> LDEQ did not respond to comments that 1) the use of regional background data for air quality modeling is not the same as, and does not replace, preconstruction monitoring at the location of a new major source; 2) the PSD Permit and Statement of Basis do not explain whether or why any pollutant other than CO and lead were exempted from the preconstruction monitoring requirement; 3) a minimum of four month of preconstruction monitoring data is required; and 4) preconstruction monitoring should not be exempted because violations of national ambient air quality standards already exist in the area.<sup>288</sup> As a result of these

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<sup>285</sup> RTC, pp. 106, 348-49.

<sup>286</sup> LAC 33:III.509.I.

<sup>287</sup> RTC, p. 107.

<sup>288</sup> See RTC, pp. 106-107, 348-49.

deficiencies, the Permits do not comply with the preconstruction monitoring requirements of PSD and the SIP.

**VII. LDEQ unlawfully issued the PSD Permit without providing the required opportunity for public participation in the decision-making process.**

LDEQ issued the PSD Permit in violation of the public participation requirements in PSD and the SIP. Because LDEQ did not ask for or obtain technical support documentation, the public was deprived a full opportunity to review and comment on the technical aspects of the BACT determinations, emission calculations and air quality impact analyses provided in the Public Hearing Document. One of the stated purposes of PSD is to “assure that any decision to permit increased air pollution in any area to which [PSD] applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decisionmaking process.”<sup>289</sup> PSD and the SIP require the air quality impact analysis and BACT determinations for a new major source to be available for public review and comment at a public hearing.<sup>290</sup> These must also be included in the PSD Permit.<sup>291</sup> In addition, LDEQ must make available for public review and comment a copy of all materials submitted by the applicant and a copy or summary of any other materials LDEQ considered in making the preliminary determination.<sup>292</sup>

As an initial matter, the documents contained in the Public Hearing Packet do not clearly identify and distinguish the proposed PSD permit and proposed Part 70 permit.

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<sup>289</sup> 42 U.S.C. § 7470(5)

<sup>290</sup> 42 U.S.C. § 7475(a); LAC 33:III.509.Q.2

<sup>291</sup> LAC 33:III.A.3.

<sup>292</sup> LAC 33:III.509.Q.2.

The documents that LDEQ identifies as the proposed Part 70 permit and the Statement of Basis include information relating to BACT determinations and air quality impact analyses that are not included in the documents that LDEQ identifies as the proposed PSD permit. Control technology requirements and emission limitations, and air quality impact analyses contained in the Part 70 permit (proposed or final) or Statement of Basis (proposed or final) do not satisfy the requirement to include all such determinations in the PSD Permit, do not provide for necessary enforceability of the emission limitations, and do not give the public the required opportunity to participate in the PSD permitting process.

LDEQ did not request that Nucor provide technical support documentation for available control technologies, such as vendor guaranties, design parameters, drawings and technical specifications, even though LDEQ had evidence that Nucor possessed such documentation. Instead, LDEQ relies solely on certifications by a responsible corporate office and professional engineers that the application is true and accurate.<sup>293</sup> These certifications do not discharge LDEQ's duties to provide a technical review of the application and to make reasoned decisions rationally based on facts and evidence.

There were a number of required elements that were simply not made available for public review and comment, including the following:

- BACT determinations for coke oven emissions, particularly during HRSG bypass events and FGD absorber bypass events.
- BACT determinations for sulfuric acid mist, H<sub>2</sub>S and dioxins were not available for public review and comment.
- Air quality impact analyses, including modeling and preconstruction monitoring, for sulfuric acid mist, H<sub>2</sub>S and dioxins.

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<sup>293</sup> See, e.g., RTC, pp. 72-73, 78-81, 92-93, 96-101, 113, 187-88, and 266-71.

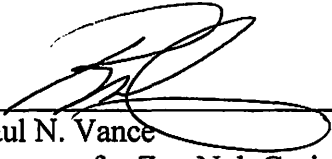
- The air quality impact analyses for PM<sub>10</sub> and SO<sub>2</sub> that were made available for public review and comment did not include required preconstruction monitoring.

The failure to make this information available precluded the public from assessing and providing comments on the petition, in violation of the public participation requirements of the CAA.

## **VIII. CONCLUSION**

Zen-Noh respectfully requests that the Administrator timely object to the Permit and remand it to the agency for full compliance with all applicable statutory and regulatory requirements, as set forth herein and for the reasons herein stated, or as set forth and stated in the other Petitions, which other Petitions are all incorporated herein by reference. Zen-Noh also requests that the Administrator revoke the Part 70 Permit upon her objection, pursuant to 42 U.S.C. § 7661d(b)(2). Further Zen-Noh asks the Administrator, if LDEQ fails, within 90 days after the date of the objection . . . to submit a permit revised to meet the objection of Zen-Noh and the other Petitioners, to deny the Part 70 Permit consistent with 42 U.S.C. § 7661d(c). Zen-Noh also asks the Administrator to “take such measures,” as required by § 167 of the CAA, 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 the Act. 42 U.S.C. § 7477.

Respectfully Submitted,



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