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Mandatory Greenhouse Gas Reporting Rule: EPA's Response to Public Comments

Volume No.: 25

Subpart Q—Iron and Steel Production

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Subpart Q—Iron and Steel Production

U. S. Environmental Protection Agency
Office of Atmosphere Programs
Climate Change Division
Washington, D.C.

FOREWORD

This document provides EPA's responses to public comments on EPA's Proposed Mandatory Greenhouse Gas Reporting Rule. EPA published a Notice of Proposed Rulemaking in the Federal Register on April 10, 2009 (74 FR 16448). EPA received comments on this proposed rule via mail, e-mail, facsimile, and at two public hearings held in Washington, DC and Sacramento, California in April 2009. Copies of all comments submitted are available at the EPA Docket Center Public Reading Room. Comments letters and transcripts of the public hearings are also available electronically through *http://www.regulations.gov* by searching Docket ID *EPA-HQ-OAR-2008-0508.*

Due to the size and scope of this rulemaking, EPA prepared this document in multiple volumes, with each volume focusing on a different broad subject area of the rule. This volume of the document provides EPA's responses to significant public comments received for 40 CFR Part 98, Subpart Q—Iron and Steel Production.

Each volume provides the verbatim text of comments extracted from the original letter or public hearing transcript. For each comment, the name and affiliation of the commenter, the document control number (DCN) assigned to the comment letter, and the number of the comment excerpt is provided. In some cases the same comment excerpt was submitted by two or more commenters either by submittal of a form letter prepared by an organization or by the commenter incorporating by reference the comments in another comment letter. Rather than repeat these comment excerpts for each commenter, EPA has listed the comment excerpt only once and provided a list of all the commenters who submitted the same form letter or otherwise incorporated the comments by reference in table(s) at the end of each volume (as appropriate).

EPA's responses to comments are generally provided immediately following each comment excerpt. However, in instances where several commenters raised similar or related issues, EPA has grouped these comments together and provided a single response after the first comment excerpt in the group and referenced this response in the other comment excerpts. In some cases, EPA provided responses to specific comments or groups of similar comments in the preamble to the final rulemaking. Rather than repeating those responses in this document, EPA has referenced the preamble.

While every effort was made to include significant comments related to 40 CFR Part 98, Subpart Q—Iron and Steel Production in this volume, some comments inevitably overlap multiple subject areas. For comments that overlapped two or more subject areas, EPA assigned the comment to a single subject category based on an assessment of the principle subject of the comment. For this reason, EPA encourages the public to read the other volumes of this document with subject areas that may be relevant to 40 CFR Part 98, Subpart Q—Iron and Steel Production.

The primary contact regarding questions or comments on this document is:

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SUBPART Q–IRON AND STEEL PRODUCTION

1. DEFINITION OF SOURCE CATEGORY

Commenter Name: Alexander D. Menotti
Commenter Affiliation: Kelley Drye & Warren et. al LLP on behalf of the Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0656.1
Comment Excerpt Number: 2

Comment: To the extent EPA will aggregate the emissions data it collects under the GHG Reporting rule for different industry sectors, SMA/SSINA believe it would be appropriate to have separate subcategories for, at minimum, Integrated, EAF-carbon, and EAF-specialty steel production, each of which have distinctly different carbon and energy consumption profiles. Such speciation would allow meaningful comparisons between facilities that operate within each category and is consistent with subcategorization included in recent climate change legislative proposals.

Response: We agree that the suggested subcategories are logical ways of aggregating the reported emissions, and there may be other groupings, such as taconite production, non-recovery coke plants, stand-alone byproduct recovery coke plants, etc. However, at this time, we have not determined how the reported emissions might be aggregated in the future. Initially, we plan to report emissions aggregated for each source category, which in this case would be for "iron and steel production" facilities.

Commenter Name: John L. Wittenborn et al.
Commenter Affiliation: Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0518.1
Comment Excerpt Number: 2

Comment: To the extent EPA will aggregate the emissions data it collects under the GHG Reporting rule for different industry sectors, SMA/SSINA believe it would be appropriate to have separate subcategories for, at minimum, Integrated, EAF-carbon, and EAF-specialty steel production, each of which have distinctly different carbon and energy consumption profiles. Such speciation would allow meaningful comparisons between facilities that operate within each category and is consistent with subcategorization included in recent climate change legislative proposals.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0656.1, excerpt number 2.

Commenter Name: Carl H. Batliner
Commenter Affiliation: AK Steel Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0337.1
Comment Excerpt Number: 16

Comment: The operational and processing differences between Integrated Steel Mills and Mini-Mills are substantial, primarily due to the dependency on coal and coke (high carbon) for the Integrated Mills. The differences between carbon steel production and specialty steel production for Mini-Mills are also substantial. The technological advancements in process equipment and control equipment required to reduce GHG emissions for each steel production classification are unique and independent, primarily due to the differences in carbon dependency. Accordingly, AK Steel reiterates to EPA the necessity to establish separate categories and subcategories within the Iron and Steel Production Subpart for this rule as the information it generates will be used for pending permitting regulations and cap-and-trade legislation.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0656.1, excerpt number 2.

Commenter Name: John Seltz
Commenter Affiliation: Minnesota Pollution Control Agency (MPCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0465.1
Comment Excerpt Number: 1

Comment: Most taconite production in the US is based in Minnesota. In developing information for CO_2 emissions from taconite production for MPCA environmental review processes, we have conducted an analysis of CO_2 emissions from taconite induration. In our analysis, we determined that a substantial fraction of CO_2 emissions released during taconite production are from non-fuel sources such as limestone, dolomite, ankerite, siderite, calcite, and organic binders. Limestone and dolomite are added as fluxes. Organic binders can include wheat flours. Ankerite, siderite, and calcite are often present in iron ore naturally. We have found that this non-fuel component of emissions varies widely from facility to facility, depending on geology and the type of pellets that are produced. We have also estimated, depending on the facility, the extent of oxidation (in fraction) of non-fuel carbon to vary from 0.6 to 1. The EPA has proposed the use of CEMS and, where CEMS are not currently in place, a carbon balance calculation (Option 3) and a stack testing option with simultaneous operating data measurement (Option 4).

Response: EPA thanks the commenter for providing additional information on the sources and fate of carbon entering the taconite indurating furnaces.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 56

Comment: In 98.172, it may be useful to clarify units for which reporting is not required. Nucor believes that GHG emissions from the following units are so small as not to warrant calculation: continuous caster; ladle metallurgical furnace, and vacuum tank degassing (the unit itself, not the associated boiler). These units are often found in melt shops and addressing them in the rule will reduce confusion about the proper reporting.

Response: After considering the commenter's request, we decided it would be more confusing to attempt to list things that are not covered, and due to variations among plants, the list of things not covered could be incomplete and lead to further confusion. Our approach is consistent with other subparts in that we state clearly and positively what processes are covered by the reporting requirements for subpart Q, and we define each of the affected processes in §98.6 "What definitions do I need to understand?" However, we also note that other processes not covered by subpart Q may be subject to the reporting requirements for subpart C for stationary combustion units.

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2. REPORTING THRESHOLD

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 55

Comment: Section 98.171: there is no apparent need for this subsection as it merely repeats §98.2(a).

Response: In Section 98.171 we refer the reader of subpart Q to the reporting threshold in §98.2(a) to ensure that it is not overlooked by owners or operators of iron and steel production facilities. This structure is consistent with that applied to other subparts and is a useful cross reference.

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3. GHGS TO REPORT

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 7

Comment: The Proposed Rule contains contradictory statements regarding the reporting of methane (CH_4) and nitrogen oxide (N_2O) emissions for sources regulated under Subpart Q. Section 98.172 differentiates between combustion sources (which are required to "report combustion-related CO_2, CH_4 and N_2O emissions from each stationary combustion unit") and primary steelmaking operations (which must only "report process-related CO_2 emissions").

Compare §§98.172(a) and (b). This dichotomy is clear, and the decision not to require CH_4 and N_2O reporting from steelmaking operations makes good sense because any CH_4 or N_2O emissions from these units will be minimal. See, e.g., Calculating Greenhouse Gas Emissions from Iron and Steel Production, Greenhouse Gas Protocol Initiative (Jan. 2008) at p. 22 ("The CH_4 emissions from steel-making are assumed to be negligible and are therefore not discussed here."). Further, any minor emissions that may exist would be highly variable depending on operational dynamics that are constantly changing due to the batch nature of the steelmaking process. Thus, §98.172(b)'s requirement to report only CO_2 reflects the proper conclusion that the burden of reporting CH_4 or N_2O emissions from primary steelmaking would far outweigh any minimal increase in overall GHG reporting accuracy. Section 98.174(d) creates unnecessary ambiguity in that otherwise plain approach. That provision broadly states "for CH_4 and N_2O emissions, you must meet the monitoring and QA/QC requirements of §98.34." The likely intent of this language is to require that combustion sources at steelmaking facilities which are subject to Subpart C pursuant to §98.172(a) must also satisfy the related Subpart C QA/QC requirements. However, the language contains no express limit and arguably extends to all Subpart Q sources. The clearest way to resolve this ambiguity is to simply delete §98.174(d). That change would have no impact on the QA/QC requirements for steelmaking combustion sources because §98.172(a) already requires covered facilities to "follow the requirements in subpart C," which include §98.34. Accordingly, we request that §98.174(d) be deleted in its entirety to clarify the rule.

Response: We have clarified that reporting of CH_4 and N_2O is required for combustion sources under subpart C and is not required for process units subject to subpart Q. The QA/QC requirements of §98.34 would apply to the combustion sources reported under subpart C. Additional details are provided in section III of the preamble to this rule (see section Q, Iron and Steel Production.

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4. SELECTION OF PROPOSED GHG EMISSIONS CALCULATION AND MONITORING METHODS

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 3

Comment: AISI and ACCCI support Option 2, a carbon mass balance approach using default or typical carbon content of inputs and outputs and production records for quantities, but on a facility-wide basis as opposed to process-specific calculations. The method we propose is essentially the method used for a number of years by AISI and which is acknowledged in the preamble discussion of options. EPA dismisses the use of the methodology because it has been used mainly for corporate-wide reporting and aggregation of industry emissions. However, it has recently been adapted to facility-wide reporting and is emerging as the preferred reporting protocol internationally. We believe the methodology we propose is justified by the following considerations. On the one hand, the major sources of carbon that give rise to CO_2 emissions in iron and steel plants are relatively few in number and have relatively consistent carbon contents. On the other hand, carbon moves by many paths throughout an integrated steel plant in the form of intermediate products and recovered waste gases. This combination of factors makes frequent and composite sampling and analysis of individual process inputs and outputs unnecessary and excessively burdensome given the initial objectives of the reporting rules. Sources of carbon leading to direct emissions of CO_2 in a typical integrated iron and steel plant are limited to the following: 1. Metallurgical coking coal or purchased coke 2. Coal for blast furnace injection 3. Limestone or dolomite 4. Natural gas 5. Fuel oil 6. Purchased pig iron 7. Purchased scrap Except for scrap, the carbon content of each of these inputs is easily determined by routine testing or reliable default factors. In the case of scrap, the carbon content is insignificant compared to other inputs and is offset by the carbon in the steel ultimately produced. Of course, coal, natural gas, and fuel oil are already proposed for upstream supplier reporting of CO_2 emission potential under Subparts KK, NN, and MM, respectively. The potential points of CO_2 emissions in an iron and steel plant, on the other hand, number in the dozens or hundreds and typically include the following: 1) Coke oven combustion stack 2) Blast furnace stove stack 3) Flares of coke oven gas or blast furnace gas 4) Boiler stacks (multiple discharges) 5) Sinter plant stacks (where applicable) 6) BOF stacks 7) EAF and AOD stacks or baghouse monitors 8) Reheat furnaces (multiple discharges) 9) Annealing furnaces (multiple discharges) 10) Process heaters (multiple discharges) 11) Miscellaneous heating sources (multiple discharges, some fugitive in nature) 12) Space heating (multiple discharges) It is entirely reasonable to assume that carbon associated with the limited number of facility-wide inputs listed, minus any carbon that is exported from the plant in the form of products or byproducts, is eventually emitted as CO_2 from the facility's numerous discharge points. Examples of carbon credits include coke oven byproducts (e.g., tar or light oil) or sold or transferred coke, coke oven gas, or blast furnace gas. Although there is also carbon contained in the steel product that could also be accounted for as a credit, as described below in comments on the BOF and EAF/AOD calculation methodologies, it is relatively insignificant compared to the overall carbon balance and is offset in large part by carbon in scrap. For individual facilities there may be small exceptions and variations in the inputs or outputs that can be accounted for in a similarly simplified fashion. EAF steel production facilities are not as complex as integrated plants but also have relatively few carbon-containing inputs with numerous individual units that would be subject to reporting. Therefore, emissions from EAF facilities can be adequately accounted for with a facility-wide carbon balance approach as well. AISI has been using this simple facility-wide carbon balance methodology for purposes of calculating and reporting industry energy consumption and CO_2 emissions for several years and for reporting under the government's Asia Pacific Partnership (APP) program in, which includes Australia, Canada, China, India, Japan, Korea, and the U.S., all major steel-producing countries. We believe EPA's active participation in this program, which at no time included any objection to this reporting methodology, is an endorsement of its appropriateness. It accounts for a very high percentage of the iron and steel industry's CO_2 emissions while striking a reasonable balance of detail for reporting. In fact, we believe it captures a greater percentage of emissions than the methodology specified in the proposed rule because it picks up many small sources of CO_2 that are not specified in the proposed process-specific calculation methods. Moreover, the calculation methodology specified for specific processes in the iron and steel source category account for only a portion of the emissions associated with those processes (e.g., see comments below for the blast furnace process). Thus, the proposed calculation and reporting scheme fails to accomplish one of the stated purposes of the process-specific approach, i.e., to provide data that will be useful for future regulatory considerations. Although our proposed methodology accounts for CO_2 emissions associated with the combustion of coal, natural gas, and fuel oil, which we argue elsewhere are unnecessary to report and result in double-reporting and potential double-counting because of reporting by suppliers of these fuels, it assures that all direct emissions from the facility are accounted for and are not inadvertently omitted from the calculation or reporting methodology proposed. For example, emissions from flares, fugitive emission sources, and numerous combustion sources (e.g., lances for ladle refractory drying, space heaters, cutting torches, pilot lights, water heaters) which are virtually impossible to monitor, would be included in a carbon balance approach. Fuel consumption from these types of sources would be impossible to quantify because they are not separately monitored, whereas fuel consumption for an entire facility (natural gas, for example) is normally metered at a single location for purposes of determining charges by the utility. AISI and ACCCI strongly urge EPA to consider this more simplified total plant carbon balance approach in any final rule imposing mandatory CO_2 reporting for individual facilities. It does not substantially vary from the World Resources Institute (WRI) iron and steel reporting methodology or the Intergovernmental Panel on Climate Change (IPCC) methodology, both of which AISI helped to establish. In addition to its use in the APP and its submittal to ISO for adoption as an ISO standard, it is also consistent with the methodology being used internationally by the World Steel Association. In contrast, the methodology set forth in the proposed rule bears no resemblance to any of these established industry methods. We urged the Agency to accept this industry-established protocol in our meeting and in written comments during development of the proposed rule, and EPA has accepted other established industry protocols, e.g., for the cement and petroleum industries. We request the same for the iron and steel industry. This is consistent with one of the fundamental goals articulated by EPA, i.e., "Create reporting requirements that are consistent with existing GHG reporting programs by using existing GHG emission estimation and reporting methodologies to reduce reporting burden, where feasible." 74 FR 16456 [See DCN:EPA-HQ-OAR-2008-0508-0695.2 for the attached User Guide for the World Steel Association's CO_2 Emissions Data Collection project and DCN:EPA-HQ-OAR-2008-0508-0695.3 for the attached CO_2 Project Web Application Security Assessment.]. While the World Steel protocol does not exactly represent the facility-wide carbon balance approach AISI and ACCCI are suggesting (for example, it includes some indirect emission sources that are not part of the EPA proposal), it is easily adapted to the approach we are advocating and is illustrative of that approach. If there are refinements to the established industry practice that EPA believes would enhance the accuracy of the industry-proposed methodology or reduce uncertainties or provide EPA with greater confidence in the information reported by the industry, we would welcome discussions leading to mutually agreeable and reasonable revisions that would accommodate any EPA concerns. EPA states that it has proposed a detailed, process-specific calculation and reporting methodology for both upstream and user emissions to serve the purpose of every conceivable future climate change program or regulation. For example, programs relying on trading emission credits, carbon sequestration, or future rules under the Clean Air Act for new or existing sources may require more documentation to substantiate those transactions or activities or to demonstrate compliance. However, we believe this initial GHG reporting program should be designed to frame the overall national GHG emissions to establish a basis that can be used to monitor national trends and support other regulatory programs that are deemed necessary in the future. It is regulatory overkill to establish requirements designed to account for stack-by-stack emissions and minute sources of carbon that are but small percentages of overall emissions, particularly when the rule claims to a cover only 85% of national GHG emissions and exempts sources under 25,000 metric tons per year. We urge EPA to engage in further discussions with iron and steel and cokemaking industry personnel to construct a reasonable, sensible, and efficient calculation and reporting methodology that serves EPA goals while balancing the industry's burden, resources, and costs. While we strongly believe EPA should adopt a more reasonable and simplified alternative approach to quantifying the iron and steel industry's CO_2 emissions and that such an approach will provide a more accurate and complete accounting of facility-wide emissions, we submit the following comments on the elements of the rule as proposed.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 28

Comment: EPA's rationale for selecting monitoring requirements includes four options: (1) direct emission measurement, (2) combination of direct emission measurement and facility-specific calculations, (3) simplified calculation methods, and (4) reporter's choice of methods. The agency has selected the second of these options as the general monitoring approach. AISI and ACCCI object to any mandatory GHG emission monitoring or testing requirements as part of this rule. Although monitoring is already a requirement for fossil fuel power generating facilities under a pre-existing program that has been in place for years, utilities have only a few very large emission points. However, the equivalent monitoring requirements are not appropriate or practical for manufacturing facilities such as steel plants or coke plants that may have dozens or even hundreds of emission points because of the plants' complexities and multiple processes and combustion units. This is particularly the case when there is no applied principle or consideration of insignificant or de minimis emissions. CO_2 monitoring of those facilities would be prohibitively expensive. A reasonably accurate determination of CO_2 emissions can be more easily derived by calculating emissions based on engineering estimates, known and stable emission factors, carbon balances, or raw material or fuel specifications. All of these methods should be permitted for reporting provided that the determinations are documented. The application of the second option to the iron and steel industry discussed in the preamble is unacceptable, unnecessary, unduly burdensome, and impractical and infeasible in many respects. We support the third option (simplified calculation methods) which is described as a modified Option 2 in the iron and steel source category calculation methodology discussion. We urge EPA to accept that approach for iron and steel and cokemaking facilities.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 1

Comment: We endorse the American Iron and Steel Institute's ("AISI's") request for adoption of a facility-wide carbon balance approach for reporting steel plant GHG emissions. This method, which was considered by EPA and identified as "Option 2" in the preamble to the Proposed Rule, focuses on the default or typical carbon content of inputs and outputs using production records on a facility-wide basis. There are several key advantages to this approach: First, it has been proven effective through experience. The facility-wide carbon balance method has been used successfully for years to calculate and report CO_2 emissions under the government's Asia Pacific Partnership program and also substantially corresponds with World Resources Institute and International Panel on Climate Change ("IPCC") methodologies. Second, it has the benefit of simplicity. Establishing a single, clear set of parameters to assess GHG emissions on a plant-wide basis will allow steel companies to fully comply with the rule in a timely manner. It would be impossible for intricate sources like integrated steel mills to comply with the Proposed Rule as written by January 1, 2010. Third, a facility-wide carbon balance approach will dramatically reduce the burden of complying. Our integrated mills have literally hundreds of sources that emit differing amounts of GHGs – many from batch processes with ever-changing inputs and outputs. Assessing these operations individually over their entire operational ranges is a daunting task likely to require thousands of hours of effort per facility. Fourth, a facility-wide approach will reduce the burden on EPA to administer the Proposed Rule. While it would be relatively simple for EPA to assess compliance with AISI's plant-wide approach, it would be far more difficult to sift through complex QA/QC plans, numerous samples and individual unit-level reports. Fifth, adopting the facility-wide approach would lessen (but not totally eliminate) the need for extensive changes to the three methods currently in the Proposed Rule, thus allowing the final rule to be promulgated more quickly. While the major facility-wide carbon inputs that give rise to CO_2 emissions in iron and steel plants are few in number and relatively consistent, carbon moves by many paths throughout an integrated steel plant in the form of intermediate products and recovered gases. It is complicated, unnecessary and counterproductive to require facilities to track these intermediate products for reporting purposes (as several facets of the Proposed Rule would require), when only ultimate CO_2 emissions are truly relevant. Indeed, a facility-wide approach will capture emissions that unit- or process-specific analyses would miss (e.g., fugitive emissions). Since a facility-wide carbon balance approach has been proven to reliably capture a very high percentage of CO_2 emissions from steelmaking operations while striking a reasonable balance with EPA's legitimate needs for accuracy and verifiability, we urge EPA to adopt this approach.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Frederick T. Harnack
Commenter Affiliation: United States Steel Corporation (USS)

Document Control Number: EPA-HQ-OAR-2008-0508-0681.1
Comment Excerpt Number: 1

Comment: The proposal should allow a facility-wide carbon balance. The facility wide approach currently used by U. S. Steel and other steel companies is a technically sound and cost effective means for generating highly accurate GHG emissions estimates. This methodology has been largely adopted by international bodies working on sector-based reduction initiatives including the Asia-Pacific Partnership on Clean Development and Climate, for which the United States Department of State has been a major supporting member and contributor. The method is also the subject of a proposed ISO (International Standards Organization) standard for reporting greenhouse gases. Moreover, this is the method employed throughout the European Union since 2005 and it will be in place until at least 2013, likely much longer.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Alexander D. Menotti
Commenter Affiliation: Kelley Drye & Warren et. al LLP on behalf of the Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0656.1
Comment Excerpt Number: 10

Comment: EPA considered five options for reporting process-related emissions. Option 1 would apply a default emission factor based on the type of process and the annual rate of production. Option 2 would require facilities to perform a carbon mass balance calculation for all inputs and outputs based on default values. Option 3 also would utilize a carbon mass balance approach, but would require facility-specific measurements of all process inputs and outputs. Option 4 would require reporting based on a site-specific emission factor determined through performance testing. Finally, option 5 would require direct measurement through continuous emission monitors ("CEMS"). The proposed rule dismisses options 1 and 2 as insufficiently precise and offers options 3, 4, and 5 as co-equal reporting options. SMA/SSINA disagree with EPA's characterization of the accuracy of standardized values, particularly with regard to Option 2, which is consistent with industry-developed protocols with which steel companies have become familiar. As discussed below, we believe that a carbon mass balance approach based on option 2 could offer a high degree of scientific certainty with a far lower compliance burden. EPA's proposed Carbon Mass Balance approach (Option 3) would require weekly sampling and monthly calculations of the carbon content of all process inputs and outputs by an independent laboratory. This approach is overly complicated and should be significantly modified to reduce the costs and burdens on facilities while still maintaining a high degree of scientific accuracy. Given that the rule as proposed would exclude relatively large emission sources that fall below the 25,000 metric ton threshold from any kind of reporting, we do not believe it is justifiable to require an extreme degree of precision on one side of the threshold and no reporting at all on the other. Indeed, for reasons outlined below, we believe that default values will in many cases be more accurate for reporting carbon inputs and outputs from EAF facilities. Monthly testing of all carbon containing process inputs and outputs would be extremely burdensome and costly, and would not yield more accurate results than a scientifically-derived default value system. Since scrap used as the primary feedstock for EAF steelmaking is necessarily variable, we envision considerable difficulties in determining what is a representative sample for testing. Thus, utilizing default values would be far more reliable than weekly sampling of non-homogenous scrap, which likely would result in excessive variability and be prone to abuses in picking "representative" samples. Default values can be far more accurate than EPA assumes in the proposal. Some carbon-containing process inputs, such as lime, will not vary significantly from month to month and therefore could be addressed through default values or, at minimum, less frequent sampling. Other inputs and outputs might vary week to week and month to month, but over time the long term variability of these parameters should be insignificant, as most EAF facilities produce a consistent line of products using a consistent raw material stream. While isolated samples may exhibit variability, long-term averages will not vary significantly – and it is long-term average data on CO2e emissions that really matters for evaluating climate impacts. EPA's own statements in this rulemaking support this conclusion. Just after discussing the carbon mass-balance approach and the need to test all process inputs and outputs, the proposal's discussion of the site-specific emission factor option states "for most processes, the carbon content of process inputs and fuels is consistent and stable." EPA could develop a highly accurate reporting system within the carbon mass balance approach by using default values. For example, a default value for each grade of scrap could be developed that would have a high degree of accuracy over time and eliminate the need for individual facilities to conduct duplicative testing. The steel industry could develop separate default values for scrap grade like heavy melt, shred, and bushling. As facilities already track the chemical content of each grade of scrap in each heat cycle, highly accurate carbon content calculations could be made with minimal additional burdens. EPA has a long history of utilizing default values (emission factors) for complex air quality modeling utilized to determine NAAQS compliance, and such methods similarly could be relied upon in calculating GHG emissions to a high degree of certainty.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: John L. Wittenborn et al.
Commenter Affiliation: Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0518.1
Comment Excerpt Number: 10

Comment: EPA considered five options for reporting process-related emissions. Option 1 would apply a default emission factor based on the type of process and the annual rate of production. Option 2 would require facilities to perform a carbon mass balance calculation for all inputs and outputs based on default values. Option 3 also would utilize a carbon mass balance approach, but would require facility-specific measurements of all process inputs and outputs. Option 4 would require reporting based on a site-specific emission factor determined through performance testing. Finally, option 5 would require direct measurement through continuous emission monitors ("CEMS"). The proposed rule dismisses options 1 and 2 as insufficiently precise and offers options 3, 4, and 5 as co-equal reporting options. SMA/SSINA disagree with EPA's characterization of the accuracy of standardized values, particularly with regard to Option 2, which is consistent with industry-developed protocols with which steel companies have become familiar. As discussed below, we believe that a carbon mass balance approach based on option 2 could offer a high degree of scientific certainty with a far lower compliance burden.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 20

Comment: Nucor believes that Option 2, (as defined in the Federal Register, April 10, 2009,P.165 17) is the appropriate method for GHG calculation. Option 2 has been used by the industry for several years, and is in alignment with calculations done by steel makers around the world. By using this method, we can compare numbers from the steel makers around the world both going forward and looking back. As we evaluate leakage of steel manufacturing to other continents this will be a useful tool. In addition, it would be helpful if the agency specified a proposed precision and accuracy target for the GHG measurement system. The agency demonstrates a lack of understanding of steel making industry by not selecting the current GHG accounting methodology widely accepted by the steel making industry around the world. The Option's 3, 4 and 5 that are recommended by the agency are clearly flawed in that various ancillary GHG generating sources will be difficult to identify and account for on an ongoing basis. Examples of this are heaters in the plant that are used periodically for heat and process purposes, and portable cutting torches. By using Option 2, with mass balances and AP - 42 factors, it lowers the risk of missing emission sources on site. We strongly urge the industry work with accepted standards and methods already used by the agency and industry to regulate the steel making industry today.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 10

Comment: Nucor disagrees with EPA that IPCC Tier 3 approaches (e.g., Options 3-4- 5) are required because the IPCC Tier 2 approach (the approach used by the WSA/IISI and AISI and many other protocols) "would not provide site-specific estimates of emissions that would reflect differences in feedstocks, operating conditions, fuel combustion efficiency, variability in fuels and other differences among facilities." 74 Fed. Reg. at 16517. Properly developed, the Option 2 approach can provide very accurate information—estimated by EPA in the Inventory at an accuracy of -1 8% to +15%, considerably lower than the ± 25% EPA states in the proposed rule (74 Fed. Reg. at 16517).

Response: The general response to these comments is provided in the preamble section III, section Q, Iron and Steel Production. With respect to uncertainty, the commenter fails to note the large amount of uncertainty that is introduced by the use of default values in the Option 2 approach, which ranges from ±10% for default material-specific carbon contents to ±25% for default emission factors according to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. In contrast, the approaches we are promulgating using company-specific values have an uncertainty range of ±5% according to the IPCC guidelines. These estimates of uncertainty are for national inventories, and when the estimates are summed across facilities to obtain a national total, uncertainty is reduced from that for a single facility because overestimates and underestimates tend to cancel each other. Consequently, the uncertainty for a single reporting facility is likely to be higher than those cited above for national inventories,

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Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 5

Comment: There are substantial differences between GHG and acid rain reduction through control of SO2 and NOx emissions, the focus of the ARP. These differences suggest that there should be a different focus between the two programs. One of the most fundamental differences is that variability of the process ways against attempts at spurious precision. EPA has acknowledged that there is considerable variability in the iron and steel sector's GHG emissions. EPA suggests that this variability justifies use of a higher Tier protocol than that presently used by the WSA/IISI, AISI and most other protocols. It does not. Variability in carbon content of inputs and outputs in the iron and steel sector is endemic. In the EAF industry, there will be some variation in virtually every load of scrap received, some variation within and between loads of fluxes and carbon, different uptake of carbon into the steel, depending upon grade sought, variable loss to the atmosphere or to slag, depending upon practice, not to mention minor variations in the carbon content of natural gas and other process inputs. These variations occur at the heat level. Sampling at the heat level is not technically or economically feasible. Samping at a monthly, weekly or even daily basis does not adequately address variability which exists on a sub-day level. Instead, such sampling may merely lead to further bias when the sampling encounters an outlying value. Further, as the Carbon Disclosure Project (CDP) observes in its comments, each sampling episode adds its own level of complexity and opportunity for error. Given the number of feedstocks and combinations of inputs and outputs and the permutations that are possible, this sampling error is not insignificant and may outweigh whatever minor gain is possible from increased sampling.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 8

Comment: There are substantial differences between GHG and acid rain reduction through control of SO2 and NOx emissions, the focus of the ARP. These differences suggest that there should be a different focus between the two programs. One of the most fundamental differences is that EPA's approach for iron and steel proposes to adopt a version of "Option 4: Reporter's Choice of Methods" that EPA explicitly rejected generally. In the initial discussion, EPA stated that it wanted data comparability. But by proposing any combination of Options 3- 4-5, EPA has created a system that exactly mirrors the flaws EPA criticized in Option 4: "Because consistent methods would not be used under this option, the reported data would not be comparable across similar facilities." 74 Fed. Reg. at 16475. It also would not be comparable with the steel industry in the rest of the world, which is following the WSA/IISI and AISI approach.

Response: We disagree that we are proposing to adopt a version of "Option 4: Reporter's Choice of Methods" for iron and steel production. As we said at proposal (74 FR 16475), under Option 4 "reporters would have flexibility to select any measurement or calculation method and any emission factors for determining emissions. The rule would not prescribe any methods or present any specific options for determining emissions." In contrast, we are prescribing specific methods, and for the iron and steel source category, we are consistent with the proposed Option 2, which is based on using CEMS at facilities that are already required to use CEMS and using direct measurements or facility-specific GHG calculation methods. Our site-specific emission factor approach is based on direct measurements at the process level, and we provide an option of a carbon balance approach based on process-specific information on carbon content and mass flow rates of the process. The options provide flexibility to the affected facility in determining GHG emissions. However, all of the options are process specific, and if we had allowed the reporter to choose the method, there would be no assurance that the reported emissions were facility-specific or process-specific. Our process-specific options provide much more comparability than would an option based on the reporter's choice of methods. Also as we noted at proposal (74 FR 16517), these options we are promulgating today have been developed and used by various U.S. and international agencies, and they are among the higher tier (i.e., more accurate) approaches that are available.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 9

Comment: There are substantial differences between GHG and acid rain reduction through control of SO2 and NOx emissions, the focus of the ARP. These differences suggest that there should be a different focus between the two programs. WSA/IISI and AISI protocol approaches present an accurate overview of GHG emissions that are consistent with evolving world practice.

WSA/IISI and AISI have been seeking to overcome this variability by developing representative values that account for the variation that is observed, on average, to present the best possible overview of GHG emissions from the world and American steel industry. The values and protocols developed reflect a concerted effort to develop factors that will truly state the actual GHG emission rate after accounting for the inherent process variability.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 4

Comment: There are substantial differences between GHG and acid rain reduction through control of SO2 and NOx emissions, the focus of the ARP. These differences suggest that there should be a different focus between the two programs. One of the most fundamental differences is that the reporting threshold counsels against seeking excessive precision. EPA has proposed a 25,000 metric ton/year reporting threshold. See proposed 40 C.F.R. § 98.2(a). Given the size of this threshold, the amount of emissions from at least the EAF operations, and the minor variability that might occur due to the error between the best “average” factor under Option 2 and the more tailored values in Options 3-4-5, it is unlikely that the difference would exceed the reporting threshold. Given the large number of sources excluded, the overall total mass of GHG emissions not reported and the relatively small contribution from at least the EAF operations, it is difficult to see that the minor variability in use of Option 2 seriously impair the overall data quality.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: John L. Wittenborn et al.
Commenter Affiliation: Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0518.1
Comment Excerpt Number: 11

Comment: EPA’s proposed Carbon Mass Balance approach (Option 3) would require weekly sampling and monthly calculations of the carbon content of all process inputs and outputs by an independent laboratory. This approach is overly complicated and should be significantly modified to reduce the costs and burdens on facilities while still maintaining a high degree of scientific accuracy. Given that the rule as proposed would exclude relatively large emission sources that fall below the 25,000 metric ton threshold from any kind of reporting, we do not believe it is justifiable to require an extreme degree of precision on one side of the threshold and no reporting at all on the other. Indeed, for reasons outlined below, we believe that default values will in many cases be more accurate for reporting carbon inputs and outputs from EAF facilities. Monthly testing of all carbon containing process inputs and outputs would be extremely burdensome and costly, and would not yield more accurate results than a scientifically-derived default value system. Since scrap used as the primary feedstock for EAF steelmaking is necessarily variable, we envision considerable difficulties in determining what is a representative sample for testing. Thus, utilizing default values would be far more reliable than weekly sampling of non-homogenous scrap, which likely would result in excessive variability and be prone to abuses in picking "representative" samples. Default values can be far more accurate than EPA assumes in the proposal. Some carbon-containing process inputs, such as lime, will not vary significantly from month to month and therefore could be addressed through default values or, at minimum, less frequent sampling. Other inputs and outputs might vary week to week and month to month, but over time the long term variability of these parameters should be insignificant, as most EAF facilities produce a consistent line of products using a consistent raw material stream. While isolated samples may exhibit variability, long-term averages will not vary significantly – and it is long-term average data on CO2e emissions that really matters for evaluating climate impacts. EPA's own statements in this rulemaking support this conclusion. Just after discussing the carbon mass-balance approach and the need to test all process inputs and outputs, the proposal's discussion of the site-specific emission factor option states "for most processes, the carbon content of process inputs and fuels is consistent and stable."[See 74 Fed. Reg. page 16,518] EPA could develop a highly accurate reporting system within the carbon mass balance approach by using default values. For example, a default value for each grade of scrap could be developed that would have a high degree of accuracy over time and eliminate the need for individual facilities to conduct duplicative testing. The steel industry could develop separate default values for scrap grade like heavy melt, shred, and bushling. As facilities already track the chemical content of each grade of scrap in each heat cycle, highly accurate carbon content calculations could be made with minimal additional burdens. EPA has a long history of utilizing default values (emission factors) for complex air quality modeling utilized to determine NAAQS compliance, and such methods similarly could be relied upon in calculating GHG emissions to a high degree of certainty. If EPA nonetheless elects to require testing of inputs and outputs, we suggest that EPA require quarterly testing only for the first year, after which testing could be repeated periodically (annually) or phased out. EPA also could require new rounds of tests if feedstock specifications were found to have changed significantly.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production. We explained at proposal (74 FR 16516) that the 25,000 metric ton reporting threshold did not have a significant effect on the amount of emissions covered by the reporting rule for the iron and steel source category, and the threshold avoids a reporting burden for small producers. We disagree that we are requiring an extreme degree of precision on the other side of the threshold, and as we explain in more detail in the preamble, we modified the carbon mass balance approach to reduce its complexity and cost while maintaining the accuracy,

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Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 2

Comment: The proposed “carbon mass balance” method (Option 3) specified in the proposed rule for iron and steel plants is unnecessarily detailed and burdensome. The calculation methods specified for Option 3 for the iron and steel source category and for combustion sources found in facilities in this source category include weekly sampling, monthly composites, and annual averaging of all inputs and outputs with any carbon content, including some sampling of inputs and outputs with only the potential for trace amounts of carbon. For most process and combustion sources within the source category, this is excessive, impractical, exceedingly costly, and unnecessary. For example, BOF and EAF steel production involve the manufacture of hundreds of grades, particularly by producers of specialty alloys or stainless steels, and the method as proposed would require sampling of the steel produced in virtually every heat. These samples would then have to be melted and combined into composites for analysis on a weekly and monthly basis to comply with the rule as proposed. This would be a complex, burdensome, and costly logistical task for the sake of defining very low carbon contents characteristic of most steels, all for the purpose of subtracting from the CO_2 emission total. In addition, the scrap input to both BOFs and EAFs would vary from heat to heat, and would also be sampled with the same frequency. However, because scrap charges are non-homogeneous mixtures and are blends from a variety of scrap classifications, representative sampling of scrap inputs would be virtually impossible and an even greater logistical burden than sampling steel outputs. Examples of similar problems could be cited for the required sampling of inputs and outputs for other sources in the iron and steel source category, including sinter plants, AODs, taconite processing, and direct reduced iron units. For these and other reasons cited below for specific process calculation methodologies, we strongly object to requirements based on Option 3.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 19

Comment: The dominant carbon input to the BOF process is molten iron (typically about 4% carbon), which is normally 70-90% of the metallic charge. The remainder of the charge consists of steel scrap. The purpose of the process is to drive off carbon from the iron and to melt and refine the charge to produce a steel product low in carbon. This is accomplished by injecting high-purity oxygen into the vessel, which results in an off-gas containing CO_2 and CO that is converted to CO_2 as the off-gases are combusted, either in the hood exhausting the gases or from a flare stack in the case of so-called suppressed combustion systems. Fluxes introduced into the process to remove impurities in the form of slag are typically burnt lime or burnt dolomite. The CO_2 emissions calculation methodology described in Subpart Q for BOFs is to sum the CO_2 equivalent of carbon contained in iron, scrap, flux materials, and “carbonaceous material” and subtract carbon contained in the steel product and slag. All of these components are to be sampled weekly with monthly composites averaged to derive annual emissions. Discussion of the complexities and impracticality of this sampling, analytical and reporting frequency is contained in our general comments on the proposed iron and steel source category's reporting requirements. Any carbon contained in the iron has its origins in the blast furnace and, in turn, the coke plant. For this reason, it is unnecessary to separately account for CO_2 emissions attributed to carbon in the iron in the BOF process. Burnt lime, burnt dolomite and slag contain no appreciable carbon and need not be included in the methodology. Although there may be other "carbonaceous materials" introduced into the process (e.g., scrap tires or coke to create certain slagging conditions or to control bath temperatures), these sources are insignificant contributors and do not justify the rigorous sampling, composite analysis, and reporting proposed and should be exempt. At the very most, annual quantification is sufficient. Carbon in scrap and steel products need not be reported. We estimate that the total amount of CO_2 equivalent in steel products from BOFs and offset by the CO_2 equivalent in the scrap feed is on the order of 0.5% of the total CO_2 attributed to iron and steelmaking by the blast furnace/ BOF process. Not only is this a very small percentage, it is an intrinsic aspect of steelmaking that no amount of regulation or reporting obligations will ever change. In summary, whatever CO_2 emissions may be associated with BOF steelmaking can be readily subsumed by a facility-wide carbon balance approach, and a separate calculation methodology is not justified, much less on the scale of sampling and analysis proposed.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production. In particular, see the discussion of process-specific approaches rather than a facility-wide carbon balance. The commenter is incorrect – it is very important to account for carbon in the iron in the BOF process-specific approach because that is the primary source of CO_2 emissions from the BOF process. We agree with the commenter that some of the other materials charged to or generated by the process contain no appreciable carbon, and we have revised the carbon mass balance to acknowledge this (i.e., materials contributing to less than 1 percent of the carbon entering or leaving the process do not have to be tracked in the carbon balance).

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 32

Comment: Requirements in the specified methodologies for collecting weekly samples, preparing and analyzing monthly composites, and averaging monthly values is hardly consistent with the concept of annual reporting and is in conflict with the principle that annual reporting is sufficient for policy development. The costs and administrative burden associated with weekly and monthly requirements are far more excessive than those associated with annual reporting. The added cost and burden of the procedures prescribed as compared to a more reasonable annual reporting procedure using known operating data and carbon contents of process materials and fuels is unjustified for a marginal increase in accuracy or certainty that might accompany the more rigorous methodology contained in the proposed rule.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 22

Comment: Subpart Q of the proposed rule also requires the reporting of CO_2 emissions from Taconite Iron Ore Processing. Taconite indurating furnaces are refractory-lined grates and/or kilns that serve as drying and indurating processes for green ball (unfired) iron ore pellets. The source of heat is fuel added to the indurating furnace. The iron ore processing or indurating furnace gas contains both CO_2 and CO, that when burned emits CO_2. The original source of carbon in the taconite ore processing furnace gas is carbon-bearing fuel (natural gas, oil, pulverized coal) or raw materials (limestone, dolomite) that combine with the oxides in the iron ore pellets. In the preamble of the rule, EPA rejects Options 1 and 3 and specifies that iron and steel facilities select one of the other three options for calculating GHG emissions for taconite iron ore processes. Given the number of CO_2 emission points on some of the iron ore indurating furnaces, neither the continuous emissions monitoring method nor the site-specific emission factor method are feasible. Additionally the proposed “carbon mass balance”, while probably the most preferred method specified in the proposed rule for taconite indurating furnaces, is unnecessarily detailed and burdensome. The calculation methods specified for the “carbon mass balance” option for taconite indurating furnaces and for combustion sources found in facilities in this source category include weekly sampling, monthly composites, and annual averaging of all inputs and outputs with any carbon content, including some sampling of inputs and outputs with only the potential for trace amounts of carbon. For most process and combustion sources within the source category, this is excessive, impractical, exceedingly costly, and unnecessary. For example, iron ore pellet production involves the manufacture of different grades of pellets, particularly by producers of flux pellets, and the method as proposed would require sampling of the green balls in virtually every production run. These samples would have to be crushed and combined into composites for analysis on a weekly and monthly basis to comply with the rule as proposed. Following monthly composite sample preparations, they would then have to be sent to an independent certified laboratory, increasing the work load on an already stressed laboratory system, to meet this increased demand, timing, and logistics of the proposed rules. This would be a complex, burdensome and costly logistical task for the sake of defining product qualities that are already controlled to match specific production types. Eliminating unnecessary sampling could be addressed by providing a reduced sampling program and statistical data validation if variability is determined to be a problem. The CO_2 emissions calculation methodology described in Subpart Q for taconite indurating furnaces is to sum the CO_2 equivalents of carbon contained in green balls or unfired pellets and subtract carbon contained in the indurated or fired pellets. All of these components are to be sampled weekly with monthly composites averaged to derive annual emissions. Discussion of the complexities and impracticality of this sampling, analytical, and reporting frequency is contained in our general comments on the proposed iron and steel source category’s reporting requirements. Modifying the proposed calculation methodology with a less burdensome sampling program would still provide comprehensive and accurate data for future climate change policies.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Michael Carlson
Commenter Affiliation: MEC Environmental Consulting
Document Control Number: EPA-HQ-OAR-2008-0508-0615
Comment Excerpt Number: 22

Comment: We recommend that for Option 3 under the Iron and Steel Production Source Category the carbon content of each process input and output (other than fuels) be measured quarterly, rather than monthly as proposed (16518). The weekly analysis proposed by the agency would be particularly burdensome to this industry which has experienced major shutdowns and is suffering greatly as a result of the current economic depression.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Alexander D. Menotti
Commenter Affiliation: Kelley Drye & Warren et. al LLP on behalf of the Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0656.1
Comment Excerpt Number: 14

Comment: Under this proposed approach, facilities would be required to develop a site-specific emission factor based on accurate measurements of emissions. The emission factor would be developed based upon the results of a performance test conducted at least yearly. Performance tests would encompass nine complete production cycles at a production rate no less than 90% of the “process rated capacity,” and a separate performance test would be required for each kind of steel. In addition, a new performance test would be required whenever there is a significant change in fuel type or mix, a process change that affects energy efficiency by more than 10%, or a change in the carbon content of the feed or fuel by more than 10%. As with the carbon mass balance approach, we believe there are significant shortcomings with this approach that would make it overly burdensome for facilities. First, the requirement that a separate performance test consisting of at least nine full production cycles be conducted for each grade of steel would be extremely burdensome for facilities making multiple grades of steel, which is most steel facilities. Further, some facilities, particularly specialty steel mills, produce grades of steel requiring a heat cycle of 2-3 hours or more. The rule as proposed would require a specialty steel producer to test for as long as 27 hours for each grade of steel. Producers of multiple grades of steel would have to complete 27 hours of testing for each grade of steel produced. Some facilities produce hundreds of grades of steel, making such a provision completely unrealistic. In addition, we do not believe that a separate performance test for each grade of steel is warranted. Over the medium to long-term, overall facility carbon emissions will remain relatively consistent. In addition, the requirement to conduct new performance tests if there is a 10% change in either the energy efficiency of the process or the carbon content of inputs and outputs could discourage incremental process improvements. Thus, we suggest that these thresholds be increased to 20% to allow for environmentally beneficial process improvements. Several other aspects of this option warrant modification or clarification. For example, the final rule should provide clear guidelines for determining the 90% production level needed for testing. As production capacity is dependant on upstream and downstream factors, we foresee this requirement as generating significant confusion at facilities. In addition, the final rule should outline clearly what EPA will determine to be a “significant” change in fuel type or mix. EPA also must devise a methodology to prevent double counting of entrained combustion emissions that necessarily will be present during the stack test. Finally, while some producers may prefer the performance test option, we believe that EPA should not adopt a requirement that requires performance testing and instead should allow performance tests as an option or an alternative to the carbon mass balance method.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: John L. Wittenborn et al.
Commenter Affiliation: Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0518.1
Comment Excerpt Number: 14

Comment: Under this proposed approach, facilities would be required to develop a site-specific emission factor based on accurate measurements of emissions. The emission factor would be developed based upon the results of a performance test conducted at least yearly. Performance tests would encompass nine complete production cycles at a production rate no less than 90% of the “process rated capacity,” and a separate performance test would be required for each kind of steel. In addition, a new performance test would be required whenever there is a significant change in fuel type or mix, a process change that affects energy efficiency by more than 10%, or a change in the carbon content of the feed or fuel by more than 10%. We believe there are significant shortcomings with this approach that would make it overly burdensome for facilities. First, the requirement that a separate performance test consisting of at least nine full production cycles be conducted for each grade of steel would be extremely burdensome for facilities making multiple grades of steel, which is most steel facilities. Further, some facilities, particularly specialty steel mills, produce grades of steel requiring a heat cycle of 2-3 hours or more. The rule as proposed would require a specialty steel producer to test for as long as 27 hours for each grade of steel. Producers of multiple grades of steel would have to complete 27 hours of testing for each grade of steel produced. Some facilities produce hundreds of grades of steel, making such a provision completely unrealistic. In addition, we do not believe that a separate performance test for each grade of steel is warranted. Over the medium to long-term, overall facility carbon emissions will remain relatively consistent. In addition, the requirement to conduct new performance tests if there is a 10% change in either the energy efficiency of the process or the carbon content of inputs and outputs could discourage incremental process improvements. Thus, we suggest that these thresholds be increased to 20% to allow for environmentally beneficial process improvements.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: John L. Wittenborn et al.
Commenter Affiliation: Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0518.1
Comment Excerpt Number: 15

Comment: Several other aspects of this performance test option warrant modification or clarification. For example, the final rule should provide clear guidelines for determining the 90% production level needed for testing. As production capacity is dependant on upstream and downstream factors, we foresee this requirement as generating significant confusion at facilities. In addition, the final rule should outline clearly what EPA will determine to be a "significant" change in fuel type or mix. EPA also must devise a methodology to prevent double counting of entrained combustion emissions that necessarily will be present during the stack test. While some producers may prefer the performance test option, we believe that EPA should not adopt a requirement that requires performance testing and instead should allow performance tests as an option or an alternative to the carbon mass balance method.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 6

Comment: Additional flexibility is similarly needed to make EPA's site-specific emissions factor approach viable in the steelmaking context. The current proposal is fatally flawed because §§98.173(a)(3) and 98.174(c)(5) would combine to mandate new performance tests and recalculation every time that: (1) fuel type or the fuel/feedstock mix changes, (2) the process changes in a manner that affects energy efficiency by more than 10%, or (3) the process feed materials change in a manner that changes the carbon content of the fuel or feed by more than 10%. While this 10% approach may work for certain steady-state operations, it is infeasible for steelmaking and sintering processes. For example, the wide variety of different steels (which are produced according to customer specifications) often require different feedstocks, processes and materials. Thus, read literally, almost every heat could trigger the obligation to retest at basic oxygen furnaces. In lieu of continual retesting, inherently variable sources should be permitted to establish emissions factors based on various "modes" which represent differing operating scenarios (or product categories). Indeed, the Proposed Rule already appears to recognize the prospect of such an approach where it asserts "EAF's that produce both carbon steel and stainless or specialty (low carbon) steel" should "develop an emission factor for the production of both types of steel." §98.174(c)(2). That concept is even more critical at integrated mills. We request that the final rule expressly acknowledge that all steel mills can establish emissions factors for various standard operating "modes" which will serve as a safe harbor from retesting.

Alternately, the rule could simply be amended to require that performance testing be conducted under conditions that are representative of normal operations and eliminate the arbitrary 10% change threshold for retesting.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 12

Comment: Key language in the site-specific emissions factor testing provision is ambiguous and appears to establish a standard that is infeasible for sintering operations. Section 98.174(c)(5), which governs when new performance testing is required, provides that sources shall: Conduct a new performance test and calculate a new site specific emission factor if your fuel type or fuel/feedstock mix changes, the process changes in a manner that affects energy efficiency by more than 10 percent, or the process feed materials change in a manner that changes the carbon content of the fuel or feed by more than 10 percent. This language arguably requires retesting in three distinct circumstances: (1) "if your fuel type or fuel/feedstock mix changes," (2) where "the process changes in a manner that affects energy efficiency by more than 10 percent," or (3) when the "process feed materials change in a manner that changes the carbon content of the fuel or feed by more than 10 percent." As an initial matter, facilities need alternatives other than mandatory retesting when the carbon content of process inputs changes by more than 10%. For example, sources that elect to sample for carbon content during an initial performance testing could use that combined information to establish an emissions factor directly linking carbon input to CO_2 emissions. Since the relationship between these factors is linear, sources could then replace mandatory retesting with supplemental carbon content sampling (e.g., collected weekly and compiled for monthly testing). The percentage carbon content change in the resulting data could then be used to adjust CO_2 emissions estimates with the established emissions factor. Such alternative approaches are necessary for operations like sintering where (as discussed below) retesting will be difficult and ineffective.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Thomas W. Easterly
Commenter Affiliation: Indiana Department of Environmental Management (IDEM)
Document Control Number: EPA-HQ-OAR-2008-0508-0525.1
Comment Excerpt Number: 17

Comment: The proposed reporting rule requires affected facilities to conduct new performance testing whenever the production rate changes by more than 10% from the production rate measured during the most recent performance test. Most of the facilities located in Indiana do not operate at a steady rate and frequently have variations of 10% or greater. Requiring facilities to conduct new performance testing whenever production rates change by more than 10% is overly burdensome and repetitive. Some of the affected facilities may not even have the capability to conduct this frequency of testing.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 62

Comment: In 98.174(c)(5), Nucor questions the practical value of this provision. Feedstock mixes may vary by greater than 10% due to differences in grade being produced, differences in market price of scrap or scrap substitutes and/or energy. It is quite possible that these differences may occur on a daily or weekly basis, rendering a testing requirement impracticable. If EPA keeps this provision, the stack test should have an allowance of 90 days after triggering the testing requirement to allow scheduling of the stack tester and production to meet requirements. Currently, it appears that stack testing must be scheduled concurrently with the increase.

Response: In response to several comments, we have revised the rule to drop the 10 percent threshold and instead to require testing of different operating modes that affect emissions based on suggestions from commenters. More details on these and other revisions to the site-specific emission factor approach are provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 13

Comment: The language of §98.174(c)(5) requires clarification. The most significant textual problem is the limitless nature of the first retesting trigger which apparently applies anytime "your fuel type or fuel/feedstock mix changes." Sintering involves combining ore fines, coke, reverts (including blast furnace dust, mill scale and other byproducts), recycled hot and cold fines and trim materials and combusting these materials using gas burners to create sinter for use in steelmaking. The overall ratio of each of these components necessarily varies depending on which recyclable materials are available. Thus, read literally, the first retesting trigger would require almost constant retesting at sintering operations due to changes in the "feedstock mix." Section 98.174(c)(5)'s second and third retesting triggers obviate the need for its first trigger. For GHG reporting purposes, it is irrelevant whether the "fuel/feedstock mix changes" in some minute way unless that change would either "affect energy efficiency by more than 10 percent" or "change the carbon content" "by more than 10 percent." Since the second and third triggers already cover those scenarios, we request that EPA delete the overbroad, overlapping and confusing first trigger. Clarification of the third trigger is also necessary. The primary ambiguity lies in its use of the overlapping terms "fuel" and "feed." The Proposed Rule defines "feed" in a cement manufacturing context, but also uses that term in Subpart Q. Simultaneously, the rule defines "fuel" to mean "solid, liquid or gaseous combustible material." Id. The net result is more confusion – particularly in how to classify sinter feed materials. For example, coke fines (a.k.a. coke breeze) apparently qualifies as both "fuel" ("solid . . . combustible material") and "feed" (as part of the mixture sent to the sinter strand). That ambiguity would make it difficult to assess whether the "carbon content of the fuel or feed" has changed "by more than 10 percent" because it is impossible to know what materials fall in each category. There is a simple solution to this ambiguity in the sintering context. EPA should confirm that the combined mix of materials fed into the sinter strand collectively constitute "feed" (and not "fuel") for purposes of §98.174(c)(5). Further, EPA should confirm that sinter plant operators need only sample the blended mix of materials entering the sinter strand to assess whether carbon in this feed material has changed by "more than 10%" thus triggering retesting.

Response: We have addressed the comment on the 10% trigger above (see the response to EPA-HQ-OAR-2008-0508-0605.1, comment excerpt number 62), and additional details are provided in the preamble section III, section Q, Iron and Steel Production. In addition, we have clarified the carbon balance approach as the commenter suggested to indicate that the combined mix of materials fed to the sinter strand constitutes the feed that can be sampled for carbon content (i.e., every different material used in the mixed blend does not have to be analyzed and quantified separately).

Commenter Name: Thomas W. Easterly
Commenter Affiliation: Indiana Department of Environmental Management (IDEM)
Document Control Number: EPA-HQ-OAR-2008-0508-0525.1
Comment Excerpt Number: 18

Comment: The proposed reporting rule requires affected facilities to conduct new performance testing whenever the production rate changes by more than 10% from the production rate measured during the most recent performance test. Most of the facilities located in Indiana do not operate at a steady rate and frequently have variations of 10% or greater. Requiring facilities to conduct new performance testing whenever production rates change by more than 10% is overly burdensome and repetitive. Some of the affected facilities may not even have the capability to conduct this frequency of testing.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Thomas W. Easterly
Commenter Affiliation: Indiana Department of Environmental Management (IDEM)
Document Control Number: EPA-HQ-OAR-2008-0508-0525.1
Comment Excerpt Number: 21

Comment: The proposed reporting rule requires sources wishing to establish an onsite CO_2 emission factor to sample annually at an operating rate no less than 90% of the process rated capacity. Additionally, the proposed reporting rule would require batch or cyclic processes (basic oxygen furnaces, electric arc furnaces, and direct reduction furnaces); to cover at least nine complete production cycles that start when the furnace is being charged and end after steel or iron and slag have been tapped. Sinter plants, indurating furnaces, and non recovery coke oven batteries would be required to sample for at least 9 hours of continuous operation. These testing requirements are too costly and overly burdensome, for example, many processes operate at 90% of their rated capacity only upon cold start up operating at this rate for an entire testing period often results in the production of product that is unsuitable for sale and must be scrapped at great cost. Indiana recommends that the testing requirements be revised to be more reasonable/less arduous for this source sector.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 61

Comment: In 98.174(c)(2), it is not clear what EPA seeks to gain by requiring nine hours of testing if a site-specific emission factor is to be developed. While nine hours is better than a single hour in terms of representativeness, Nucor has learned, based on reviewing thousands of hours of CEMS data, that far more than nine hours is required to develop a good feel for what representative values are. Standard stack testing at representative values gives a “good enough” value if a site specific emission factor will be developed. Nucor does suggest that EPA consider using a three-year rolling average of the stack test values to make them more representative of overall emissions while still reflecting changes in feed stocks and practices over time.

Response: We have revised the site-specific emission factor approach to address these and other comments – see the preamble section III, section Q, Iron and Steel Production for further discussion.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 63

Comment: In 98.174(c)(6), EPA should recognize that the results of the performance test and the results of the various analytical tests are likely to come from different laboratories and consultants. Presumably, EPA is merely requiring that the calculation showing the final emission factor include all of this information. It may be difficult to get the emission test consultant to include information gathered by others under their engineering seal.

Response: Based on our review of numerous test reports, it is standard procedure for the performance test report to include information on stack gas volumetric flow rate and measurement results for CO_2 concentration. When requested, many test reports include the mass rate of the process during the test. This is the fundamental information needed to develop a site-specific emission factor and must be included in the report to document the calculation of the emission factor.

Commenter Name: Carl H. Batliner
Commenter Affiliation: AK Steel Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0337.1
Comment Excerpt Number: 5

Comment: For several reasons, some of which are identified above, the Carbon Mass Balance Method and the Site-specific Emission Factor Method, as proposed, are too onerous, expensive, and impractical, if not infeasible for estimating GHG emissions from steel process units. The Steel Industry, through its trade associations, has established emission factors for estimating GHG emissions from steel process units which should be more than adequate for EPA's needs. Steel facilities use similar emission factors for estimating actual criteria pollutant emissions for emission inventory reports and fee emission purposes. These emission factors have always been acceptable to EPA for these reports. In addition, the emission calculations from these factors have much more impact than GHG emission calculations would because they are used for local National Ambient Air Quality Standard assessments and dispersion modeling analyses. Accordingly, the use of established emission factors for GHG emission calculations should be sufficient as well. If facilities have "enhanced" information based on a site-specific performance test, then they should have the option of utilizing that information in lieu of the established emission factors for their GHG reporting purposes, in the same manner as they report criteria pollutant emissions. However, there is no reason to require a facility to conduct annual performance testing to develop these factors. Since EPA believes established emission factors are acceptable for combustion sources and for coke pushing, we see no reason why they cannot be acceptable for process sources in calculating GHG emissions. The emission factors can be established through the trade associations to ensure consistency. In the preamble to the proposed rule, EPA discusses five options that were considered for measuring or estimating GHG emissions, but in the proposed rule EPA eliminated the first two from the iron and steel source category which were: (1) default emission factors based on process type and annual activity rate; (2) a carbon balance of all inputs and outputs using default or typical values for carbon contents and known annual quantities from production records. The two options EPA has eliminated are the only practical and feasible options available. Option (1) can be developed, as discussed above, through the trade associations and Option (2) is the process the steel industry has been using to report facility C02 emissions through the DOE's Climate VISION Program for several years. These are the data currently used by EPA for its annual reports. For the steel industry; these options will likely yield equivalent results with substantially less work and expense than the three options in the proposed rule.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: John Seltz
Commenter Affiliation: Minnesota Pollution Control Agency (MPCA)
Document Control Number: EPA-HQ-OAR-2008-0508-0465.1
Comment Excerpt Number: 2

Comment: Some of the taconite producing facilities in Minnesota have installed or are installing CEMS. Many have not. Under the proposed rule, those facilities that have not installed CEMS would use either Options 3 or 4. Based on our analysis of the variability of non-fuel carbon oxidation across facilities, the MPCA believes that Option 4 with changes might be the most expeditious approach. Using this approach, the CO_2 in the stack gases can be broken down into fuel and non-fuel parts. The fuel component is well known, based on well measured fuel inputs. Given a known concentration of CO_2 in the stack gas, the residual must be the CO_2 associated with the non-fuel oxidation. This eliminates the need, as in Option 3, for the facility to narrowly characterize all nonfuel inputs and their respective oxidation rates, which, as we note, are highly variable from facility to facility.

Response: We agree with the commenter that direct measurements as provided by Option 4 or a CEMS are preferred approaches. However, we allow for the use of Option 3 (carbon mass balance) because it is a widely-accepted protocol both domestically and internationally, many companies already apply it, and we have attempted to account for site-specific differences among plants by requiring site-specific sampling and analysis for carbon content of each process input and output. For all three options, the owner or operator is required to report total CO_2 emissions from the process and is not required to attempt to identify and report separately the contribution from fuel and non-fuel sources.

Commenter Name: Alexander D. Menotti
Commenter Affiliation: Kelley Drye & Warren et. al LLP on behalf of the Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0656.1
Comment Excerpt Number: 15

Comment: Option 5 would require use of CEMS if they are already used under the combustion provisions of the rule, which require Tier IV reporting (use of CEMS) for units that combust solid fuels. The proposal then confusingly states “If you do not currently have CEMS that meet the requirement . . . or where CEMS would not adequately account for process emissions, we propose that options 3, 4, or 5 could be implemented.” (Emphasis added). As EAF facilities combust gaseous fuels and therefore are subject to Tier III reporting under the combustion provisions, CEMS would not be required for EAFs under the combustion sections of the rule. It would be illogical and unfair to circumvent the leniency granted for gaseous fuel combustors by nonetheless requiring CEMS for process emissions emitted from the same stack. We do not believe this is EPA’s intent. Accordingly, SMA/SSINA request that EPA clarify that, for facilities currently without CEMS, the use of CEMS is merely an optional monitoring method.

Response: The commenter is correct that for facilities currently without CEMS on the process units subject to subpart Q, a CEMS is merely an optional monitoring method for process-related emissions. Subpart Q requires reporting emissions from the affected processes based on a CO_2 CEMS only if there is a CEMS in place that is operated and maintained according to the requirements the Tier 4 methodology in subpart C (General Stationary Combustion). (See §98.173(a)(1).)

Commenter Name: John L. Wittenborn et al.
Commenter Affiliation: Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0518.1
Comment Excerpt Number: 16

Comment: Option 5 would require use of CEMS if they are already used under the combustion provisions of the rule, which require Tier IV reporting (use of CEMS) for units that combust solid fuels. The proposal then confusingly states “If you do not currently have CEMS that meet the requirement . . . or where CEMS would not adequately account for process emissions, we propose that options 3, 4, or 5 could be implemented.” (Emphasis added). As EAF facilities combust gaseous fuels and therefore are subject to Tier III reporting under the combustion provisions, CEMS would not be required for EAFs under the combustion sections of the rule. It would be illogical and unfair to circumvent the leniency granted for gaseous fuel combustors by nonetheless requiring CEMS for process emissions emitted from the same stack. We do not believe this is EPA’s intent. Accordingly, SMA/SSINA request that EPA clarify that, for facilities currently without CEMS, the use of CEMS is merely an optional monitoring method.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0656.1, excerpt number 15.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 1

Comment: Given the number of CO_2 emission points in a typical steel plant, neither the continuous emissions monitoring method (Option 5) nor the site-specific emission factor method (Option 4) are feasible. With respect to Option 5, it is well documented that continuous emission monitoring of CO_2 and stack gas flow are not reliable. (See paper by RMB Consulting & Research presented at the EPRI CEM Users Group Meeting, Denver, Colorado, May 14-16, 1997.) This research shows that test results, particularly for stack gas flows, vary widely depending on exhaust system configurations. Equipment reliability is also a factor. As such, companies would likely have to maintain separate data collection systems for mass balance reporting to serve as a backup for unreliable continuous monitoring.

Response: We disagree with the commenter. The CO_2 CEMS has been demonstrated in numerous applications to be accurate and reliable, and it provides a superior means to capture all of the process variability in emissions over time. In addition, continuous measurement of stack gas flows has improved over the past several years and is used in combination with many other types of CEMS (not just CO_2 CEMS). The advancements since the time of the paper (1997) have improved the accuracy and reliability of many different types of CEMS, including CO_2 CEMS, as well as continuous flow meters. Similarly, representative stack sampling is a direct measurement technique that has been demonstrated for several years to provide reliable emission factors for processes that operate under consistent conditions (e.g., see the extensive and widely-used compilation of emission factors in EPA's AP-42 documents). In addition, we have revised the rule as proposed to require additional sampling and the development of separate emission factors if a process routinely operates under different conditions that significantly affect CO_2 emissions.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 5

Comment: Steel plant operators should have the flexibility to use the tools they already possess: custom-made analytical tools that can produce far more accurate emissions estimates while eliminating these logistical concerns. To satisfy demanding customer specifications, many facilities use intricate computer models to achieve precise carbon levels (in the single parts per million) in each heat of steel produced. These models can also calculate related CO_2 generation rates with accuracy that far exceeds EPA's mass balance equation. That is because these computer models account for quantity of oxygen blown, silica, temperature, the addition of alloys and other factors that are either not considered or only roughly assessed by surrogate weekly samples in the mass balance equation. For example, ArcelorMittal's Burns Harbor facility already uses a computer model known as the "BOF Charge Model" to achieve precise carbon results in every heat of steel produced. This model is not subjective. Rather, it is based on chemical sampling, weight measurements on regularly calibrated scales and carefully refined process parameters. It also contains algorithms that automatically adjust for equilibrium changes, temperature, silica and the addition of alloys. Furthermore, the BOF Charge Model "learns" from the results of each heat of steel via an automatic feedback loop that enables continuous improvements in accuracy. The results of the BOF Charge Model are also verified by periodic testing. Detailed records of these parameters are already kept and would be available to determine average CO_2 emissions as needed. Exhibit A [See DCN:EPA-HQ-OAR-2008-0508-0496.1] to these comments is a printout directly from the BOF Charge Model for six heats of steel produced on June 3, 2009 at ArcelorMittal's Burns Harbor facility. As this printout shows, this model can predict CO_2 generation with exceptional accuracy (i.e., with a margin of error of +/- 20 kg/heat) from each and every heat that is produced. As these results indicate, based on varying raw material input and other operating parameters, total CO_2 created from the six heats at issue ranged from a low of 41.9 tons in the first reported heat to a high of 46.4 tons in the third reported heat. This model is not only more reliable and accurate than the calculation proposed in

§98. 173(c)(2)(ii), but also much more cost effective. That is because ArcelorMittal (and many other steelmakers) already conduct such analysis to meet demanding customer specifications and maximize energy efficiency. Thus, using the BOF Charge Model as the basis for GHG emissions reporting would impose almost no additional costs while simultaneously eliminating the extensive testing otherwise requested under the Proposed Rule's mass balance approach. [Footnote: It is important to note that these high-level results are achieved without the burdensome calibration, testing and other obligations associated with the various alternatives in the Proposed Rule. A key facet of the flexibility requested in these comments is the ability to continue this approach based on the current level of inputs and outputs.] Since such models are the centerpiece of quality control in steelmaking operations, EPA has every reason to be confident in the resulting data because operators have direct financial incentives to make their models as accurate as possible. To enable more precise and efficient reporting, we request that EPA amend the Proposed Rule to allow operators to utilize alternative emissions calculation methods that provide either equal or greater accuracy than the carbon mass balance approach.

Response: The commenters did not provide enough information and details for EPA to evaluate whether their site-specific alternative methodology could be implemented in a more generic manner and thus incorporated into the rule as an option available to all facilities. The EPA made a general decision to use standard methods to ensure consistency among the facilities in each source category. EPA did not propose to allow companies to petition for approval of alternative methods. If there are alternative methods that can be fully reviewed and evaluated, EPA can subsequently amend the rule to include them.

Commenter Name: Frederick T. Harnack
Commenter Affiliation: United States Steel Corporation (USS)
Document Control Number: EPA-HQ-OAR-2008-0508-0681.1
Comment Excerpt Number: 2

Comment: The proposal is overbroad. As written the proposed requirements are designed to account for stack-by-stack emissions and minute sources of carbon that are but a small percentage of overall emissions, particularly when the rule claims to a cover only 85% of national GHG emissions and exempts sources under 25,000 metric tons per year. Any additional precision in the data achieved by this method will be overwhelmed and lost in the overall total quantity of emissions even at the facility level thus adding additional burden with little to no return. The proposal simply does not satisfy a commonsense, cost-benefit justification.

Response: Subpart Q does not require accounting for stack-by-stack emissions and minute sources of carbon that are small – it only applies to specific process units that are significant sources of CO_2 emissions. For example, the facilities within the commenter's company would be required to report process emissions under subpart Q from the basic oxygen furnaces' primary control systems at each location and from the sinter plant at one location. Emissions from combustions sources are addressed under subpart C, and responses to comments dealing with small combustion sources are provided in the response to comment document for subpart C (General Stationary Combustion).

Commenter Name: Frederick T. Harnack
Commenter Affiliation: United States Steel Corporation (USS)
Document Control Number: EPA-HQ-OAR-2008-0508-0681.1
Comment Excerpt Number: 5

Comment: The proposal is cost prohibitive. The U.S. EPA proposed process-specific calculation and reporting methodology for the iron and steel sector, including independent cokemaking facilities, is exceedingly costly, burdensome, resource-intensive, and unnecessary. This requirement will increase the burden on these facilities by orders of magnitude as each process will essentially require a level of scrutiny significantly more than required to produce high quality steel and detail in reporting similar to or exceeding that of a whole facility. This would be particularly true if the CEMS method is employed.

Response: As explained in the preamble, we have reduced the burden of the carbon balance approach and site-specific emission factor approach. In addition, our analysis of costs shows that the requirements are not unduly burdensome or costly, and the commenter provided no specific information or alternative cost estimates to show that our cost estimates were wrong. Finally, the commenter should note that CEMS are not required to be installed for process units subject to subpart Q, and the use of CEMs is optional.

Commenter Name: Neil J. King
Commenter Affiliation: International Metal Reclamation Company
Document Control Number: EPA-HQ-OAR-2008-0508-0711.1
Comment Excerpt Number: 1

Comment: These Comments are being submitted on behalf of the International Metals Reclamation Company, Inc. ("Inmetco") to correct what appears to be EPA's mistaken impression that Inmetco is an Electric Arc Furnace (“EAF") minimill producing steel products and that, accordingly, Inmetco falls within in the Iron and Steel Production source category under sections 98.2(a)(2) and 98.170-98.178 of the proposed Greenhouse Gases Mandatory Reporting Rule. 74 Fed. Reg. 16448 (April 10, 2009). While the Rule itself does not identify specific facilities within the various source categories, the Technical Support Document for the Iron and Steel Sector, September 9, 2008 ("Iron and Steel TSD") identifies Inmetco"s facility in Ellwood City, PA as an EAF minimill with a steelmaking capacity of 28,000 short tons per year. Iron and Steel TSD, Table 10 at 18 (listing Inmetco as number 90 out of 92 EAF minimills). We believe that the inclusion of Inmetco on this list reflects a misunderstanding of Inmetco"s business and operations. Inmetco is not an EAF steelmaking minimill. As EPA correctly states in the Notice of Proposed Rulemaking and in the Iron and Steel TSD, an EAF minimill is a steelmaking facility that “produce[s] steel primarily from recycled ferrous scrap.” See 74 Fed. Reg. at 16515; Iron and Steel TSD at 16, 18, 39. The steel products produced in EAF minimills include "heavy structurals, rail, plate, specialty bar, hot rolled, cold rolled, galvanized, and stainless flat rolled products." Iron and Steel TSD at 16. Inmetco does not melt recycled scrap and does not produce any such products. Nor does it account for any portion of aggregate nationwide steel production (not even the 0.06% of EAF steelmaking capacity shown on Table

10 of the Iron and Steel TSD). Rather, Inmetco is a hazardous waste treatment/recycling facility operating under a “Part B permit” issued pursuant to regulatory provisions implementing the Resource Conservation and Recovery Act (“RCRA”) and the parallel hazardous waste regulations of the Commonwealth of Pennsylvania. Inmetco’s business involves the recovery of metal values from hazardous wastes, used batteries, and other by-products, sludges and spent materials. The company’s principal feed materials are the hazardous wastes designated by EPA as K061 (EAF pollution control flue dust), F006 (electroplating treatment sludges), and used nickel-containing batteries. From these wastes and other secondary materials, Inmetco recovers nickel, chromium, iron, cadmium, and molybdenum—which are sold (or transferred under tolling agreements) to other companies that use the recovered material as ingredients in their own industrial processes to make various products (principally stainless and specialty steels). In short, Inmetco is engaged in resource recovery, not in steel production. In the Iron and Steel TSD, EPA seems to have wrongly conflated Inmetco‘s operation with the operations of steelmakers for which Inmetco provides waste treatment/recycling services. We would appreciate it if EPA would confirm that the listing of Inmetco as an Iron and Steel Production facility for purposes of the proposed Rule was in error, so that Inmetco will not be subject to reporting requirements that were not intended to apply to its hazardous waste treatment/recycling operation.

Response: Based on the description and information provided by the commenter, we agree that the facility as described is not part of the iron and steel production source category. Inmetco should review the final rule to determine if it is required to report under other Subparts of the reporting rule, such as Subpart C (General Stationary Combustion).

5. DETAILED GHG EMISSION CALCULATION PROCEDURES/EQUATIONS IN THE RULE

Commenter Name: Carl H. Batliner
Commenter Affiliation: AK Steel Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0337.1
Comment Excerpt Number: 1

Comment: In Subpart Q, §98.173(a)(2), Calculating OHO Emissions using the Carbon Mass Balance Method, the proposed rule states "If you have a process input or output that contains carbon that is not included in the Equations, you must account for the carbon and mass rate of that process input or output in your calculations." As there is no stated de minimis concentration for carbon for any process input, this would appear to imply that any and all alloys added that have or could contain carbon would need to be at least analyzed for carbon content and, if so contained, included in the weekly sampling and monthly mass balance. As it is not uncommon to process different grades of steel everyday, which require different alloys, the mass balance method would be very difficult to monitor, sample, and quantify on a weekly and monthly basis, for carbon and specialty steel production, due to the various grades produced and the multitude of alloys utilized each week. In addition to the various number of input materials, there are a multitude of output components to consider for the mass balance equation too, including collectate in air emission control devices (e.g. baghouse dust, scrubber sludge, and precipitator dust) which would also need to be sampled and composited. AK Steel believes that EPA did not consider the magnitude of the components involved in a mass balance equation for process sources with or without a de minimis carbon concentration. Accordingly, AK Steel suggests that EPA consider a practical low-volume and low-carbon de minimis criteria to eliminate non-essential inputs and outputs from the mass balance equation in order to make it somewhat practical. As proposed, the weekly sampling, monthly compositing, segregation for lab analytical methodologies, and lab fees appears to make this option too burdensome and costly.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 4

Comment: Steelmaking is not a one-size-fits-all process. In fact, no two steel mills are exactly alike. Since precise carbon management lies at the heart of successful steelmaking, those with decades of hands-on experience managing carbon at their own facilities are best situated to design monitoring approaches that will net accurate results without unnecessary cost or effort. As written, the proposed carbon mass balance approach leaves significant room for improvement. For example, §98.173(c)(2)(ii) would require operators of Basic Oxygen Furnaces ("BOFs") to sum the CO_2 equivalent of carbon contained in iron, scrap, flux and "carbonaceous materials" and then subtract the carbon contained in the steel product and slag. That equation will significantly miss the mark on estimating CO_2 emissions and is impractical to use. The following concerns are illustrative: 1. Steel production involves the manufacture of dozens (if not hundreds) of grades of steel, each with its own unique carbon profile. The proposed methodology cannot capture those variations and would introduce inaccuracy by requiring facilities to estimate the carbon content of all steel based on one weekly sample. [Footnote: Nor is more frequent sampling (e.g., of each heat) the solution to this problem. Requiring sampling of every heat would be exceptionally burdensome.] 2. It is impracticable to accurately sample scrap for carbon content. Since, a variety of non-homogenous grades of scrap are blended in varying amounts, accurately assessing the carbon in scrap would require operators to actually melt and mix the scrap prior to weekly sample collection to measure carbon inputs that will roughly equal those in the steel ultimately produced in any event. 3. It is impossible to separate the slag from the steel in a manner that would allow operators to reliably measure the mass of slag created as required in the formula. 4. The formula ignores the evolution of solid carbon, which is a common occurrence during steelmaking. The carbon equilibrium of hot metal changes with temperature such that hot metal holds more carbon and cooler metal holds less carbon. As metal cools during processing, graphite flakes (a.k.a. "kish") are evolved. The formula's apparent assumption that the carbon in these graphite flakes is emitted as CO_2 introduces further inaccuracy. 5. The formula assumes that the entire carbon content of all flux added to a BOF will become CO_2. In fact, at least 20% of the lime (calcium carbonate) added to BOFs with wet scrubbers ultimately exits the steelmaking process in scrubber water as established by elevated pH levels.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production. That response discusses the improvements made to the carbon balance approach and addresses many of the concerns expressed by the commenter, including sampling frequency and an improved procedure for estimating carbon content when there are different types of scrap, We are unaware of any procedure, even those recommended by industry commenters, that account for the small amount of carbon released as fugitive emissions in the form of "kish," and we have not identified any practicable way to estimate or measure them. We disagree with the comment about lime and carbon exiting with the lime in the scrubber water. Lime is calcium oxide, not calcium carbonate as the commenter states, and lime is not a source of carbon. In addition, we have revised the carbon balance approach to require accounting for carbon leaving with the residuals from air pollution control devices, such as the scrubber water. We also note that if the carbon balance approach is particularly difficult for the commenter's process, the rule has two other options available (site-specific emission factor or CEMS).

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 24

Comment: The Proposed Rule should provide the flexibility to make adjustments to the Tier 3 combustion formulas as necessary to correct known, quantifiable inaccuracies. For example, we are evaluating the potential use of Tier 3 monitoring at sources that are known to emit CO. However, the Tier 3 methodology incorrectly presumes that all carbon in the fuel combusted will become CO_2. Since CO is not a greenhouse gas, that discrepancy would create a known inaccuracy in the Tier 3 reporting approach. A simple deduction from the results of the Tier 3 formula could correct that problem. In many instances, sufficient information exists to determine the amount of the necessary correction with confidence. For example, many sources have collected CO test data over a number of years which reliably demonstrates the carbon released as CO emissions. And still other sources prepare CO emissions estimates that are careful and consistent because they are made pursuant to permit obligations. [Footnote: Since CO is strictly regulated, facilities will have no incentive to overestimate CO emissions (which would, in turn, reduce reported GHGs). If estimates are good enough to report CO emissions under active permits, then they should also suffice for CO_2 emissions reporting purposes.] Sources with sufficient information to demonstrate CO emissions can quantify the magnitude of the necessary downward adjustment from the presumption that all carbon is released as CO_2.

Response: At proposal, we did not identify CO from incomplete combustion as a significant contributor to carbon leaving the affected processes at iron and steel production facilities. However, we have revised the rule's carbon balance procedures to require that CO (or any other inputs and outputs not anticipated in the rule's equations) be included if it accounts for one percent or more of the carbon leaving or entering the process. Specifically, the rule states (§98.173(a)(2)): "If you have a process input or output, other than CO_2 in the exhaust gas, that contains carbon that is not included in the Equations, you must account for the carbon and mass rate of that process input or output in your calculations."

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 57

Comment: In 98.173(a)(2)(iv), the sinter process has multiple feeds, so there should be a summation equation as follows: sum of each feed multiplied by carbon content of the feed minus the sum of the sinter multiplied by the carbon content of the sinter.

Response: As noted earlier, we have made several revisions to the carbon balance approach based on comments (see the preamble section III, section Q, Iron and Steel Production for more details). With respect to the sinter feed, other commenters who operate sinter plants suggested that they be allowed to sample the sinter feed after the various feed materials are ground together and mixed. This is more reasonable than sampling every material recycled to the sinter plant because the grinding and mixing produces a uniform mixture for analysis.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 58

Comment: Regarding 98.173(a)(2)(v), there is carbon in EAF air pollution control dust that is disposed or recycled. This carbon should be subtracted at the end of Equation Q-5. In addition, if the steel production is measured at or after the caster, then mill scale generated at the caster must be subtracted as well. The mill scale contains carbon and steel production is not an adequate surrogate because the mill scale has already separated from the steel prior to weighing.

Response: We have revised the carbon balance approach for EAFs and other processes to account for carbon in pollution control residue (dust and sludge) that leaves the process. We have also clarified that steel production is raw steel production from the furnace, not steel production from the caster after the loss of mill scale.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)

Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 20

Comment: The EAF steelmaking process entails imparting an AC or DC electric arc via carbon electrodes to a metallic charge and then refining or alloying the melted metal to produce desired grades of steel. The principal input is steel scrap, but other iron-bearing materials such as pig iron or direct reduced iron may also be part of the charge. Oxygen or a mixture of oxygen and natural gas is typically injected during the refining stage to drive off carbon, which – like the basic oxygen process – results in an off-gas containing CO_2 and CO that is converted to CO_2 as the off-gases are combusted in the exhaust system. Coke or coal is also frequently added to the heat to provide the proper oxidation and reduction needs depending on the nature of the iron-bearing feeds or to help regulate slag reactions or temperatures. As in the BOF process, fluxes are introduced into the EAF to remove impurities in the form of slag. Some EAF facilities also employ argon-oxygen decarburization (AOD) vessels to further refine the steel produced in the EAF. This is typically accomplished by injecting argon, oxygen, and reactants such as calcium sulfate into the molten steel to remove residual impurities. There are no carbon inputs to this process, which makes the separately prescribed AOD emission calculation in Subpart Q of the proposed rule entirely unnecessary.

Response: We disagree. Carbon enters the AOD with the steel, and the AOD process removes carbon from the steel as CO and CO_2 to produce low carbon steel, such as steel used to make stainless and specialty steel. We agree that CO_2 emissions from the AOD process are probably low compared to other processes. However, determining the CO_2 emission is straightforward, and it provides more completeness in the CO_2 emissions inventory. The purpose of this rule is to collect information on emissions sources for future policy development. Requiring reporting for these sources will provide EPA with valuable data to better characterize them and provide a more credible position if EPA elects to exclude these sources from future GHG policy analyses.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 30

Comment: Section 98.173(a) provides Subpart Q sources the option to measure GHGs via CEMS "according to the requirements in 98.33." That broad cross-reference must also be read to also incorporate the one-year deferral procedure set forth in §98.33(b)(6). Steelmaking sources will face the exact same timing challenges as combustion sources where CO_2 CEMS are being installed. Indeed, units from both categories may well exist at the same steel plant. We request confirmation of the applicability of §98.33(b)(6) to steelmaking sources installing CO_2 CEMS in the final rule.

Response: EPA confirms the applicability of §98.33(b)(6) to steelmaking sources installing CO_2 CEMS.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 10

Comment: Subpart Q specifies reporting of CO_2 from coke pushing operations using a published emission factor and applying it to the total annual amount of coal charged. While this is a simple enough procedure, we question the basis for the emission factor. The emission factor cited in the rule (0.008 ton CO_2/ton of coal charged) is an AP-42 emission factor based on several tests with a range of 0 – 0.018 lb/ton and an average of 0.0059 lb/ton but adjusted to 0.008 lb/ton based on estimated average exhaust system capture efficiencies of 74.1% during testing at two coke batteries in 1998. The coke industry has contested the basis of this capture efficiency in past comments submitted on the posting of AP-42 values. We believe the capture estimates during the tests were too low and in any event would be much higher today given the adoption of MACT rules for coke pushing, which would drop the AP-42 value closer to 0.006 lb/ton based on the tests used to develop the AP-42 factor. However, in five pushing emission tests conducted more recently in consecutive years at the Monessen coke plant (formerly operated by Koppers, Inc.), the average CO_2 value was 0.00345 lb/ton. If adjusted by using the same capture efficiency used to derive the AP-42 value, the factor using this data would be 0.00465 lb/ton, but a more realistic capture efficiency of 90% would yield a factor of less than 0.004 lb/ton, which is less than half the AP-42 value.

Response: We disagree with the commenter. Comments on the AP-42 approach for estimating emissions from pushing were addressed in the AP-42 background document before the final version of the AP-42 emission factors was published. For CO_2, the commenter did not provide the more recent test results, and most importantly, did not provide details on how the higher estimate of capture efficiency was developed, or provide a rationale why the 90% estimate is more realistic. In contrast, the basis for the AP-42 emission factor is well documented. Also, the commenter, per comments, only considered emissions that escape capture when coke is pushed from the oven. Additional CO_2 is emitted during the several minutes that the quench car travels to the quench tower. During this time, the red hot (incandescent) coke on top of the car is exposed to the atmosphere, and air moving across this coke burns the carbon and produces CO_2. These additional emissions do not appear to be included in the commenter's estimate of uncaptured emissions and do not support an overall capture efficiency of 90% for CO_2. The AP-42 emission factor was based on 26 tests from several different coke batteries (rather than five tests at a single coke battery). Finally, the emission factor received a high rating of "A", which means: "Excellent. Emission factor is developed primarily from A and B rated source test data taken from many randomly chosen facilities in the industry population. The source category population is sufficiently specific to minimize variability."

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 34

Comment: Section 98.173(b) proposes to require reporting of CO_2 emissions from coke pushing through multiplication of a published emission factor with the annual tonnage of coal charged. While this approach is reasonable, we echo AISI's concerns with the emissions factor chosen. The rule proposes to use an AP-42 factor of 0.008 ton CO_2/ton of coal charged to estimate these emissions. That factor was based on testing which does not reflect best available information or current operations. Specifically, the underlying testing was conducted at two coke batteries in 1998. Although those test results averaged 0.005 9 ton CO_2/ton of coal charged, the batteries at issue were estimated to have an average exhaust system capture efficiency of 74.1%. As a result, the actual results were adjusted upwards to 0.008. Since 1998, EPA's Iron and Steel MACT rules have come into effect. The impact of those rules on coke pushing operations (and other improvements through the normal evolution of technology, equipment and operational knowledge) have significantly improved capture efficiency. Further, more recent testing at the Monessen coke plant generated an average CO_2 value of 0.00345 ton CO_2/ton of coal charged. Both of these changes – improved capture efficiency and the new test data – support reduction of the 0.008 factor in the Proposed Rule.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0695.1, comment excerpt number 10.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 11

Comment: More importantly, however, as noted above, any CO_2 that may be emitted from this operation is already accounted for by coal supplier reports under Subpart KK, and the facility-wide carbon balance approach we suggest would include any CO_2 emissions from pushing. Furthermore, at a typical coke plant producing 1 million tons per year of coke (most are no larger), the resulting emissions using this calculation method, even using the published AP-42 factor, would amount to less than 20,000 metric tons per year, which is below the proposed reporting threshold. Use of the lower emission factor we propose would result in even lower emissions. We therefore do not believe reporting this value is meaningful or needed.

Response: We are not promulgating subpart KK at this time, but more importantly, we require reporting at the facility level and for the specific iron and steel processes. This issue is discussed in more detail in the preamble section III, section Q, Iron and Steel Production. We agree that coke pushing is a small contributor to CO_2 emissions from the iron and steel source category, and we acknowledged this in the proposal preamble. Accordingly, we have proposed a simplified method for estimating these emissions. We have an established emission factor for coke pushing emissions, so it is not burdensome to estimate and report these emissions, and reporting them provides more completeness to the emissions inventory for facilities with coke batteries. Consequently, we are requiring that CO_2 emissions from coke pushing be reported under subpart Q because we know CO_2 emissions are generated during pushing, we have procedures to estimate them, and they provide a more complete inventory of GHG emissions from coke plants.

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6. MONITORING AND QA/QC REQUIREMENTS

Commenter Name: Carl H. Batliner
Commenter Affiliation: AK Steel Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0337.1
Comment Excerpt Number: 2

Comment: If we were to presume that the Carbon Mass Balance Method was feasible, there still remain numerous issues to address. For example, what are the criteria for establishing a representative weekly input and output sample of each material, especially the diverse materials like scrap, slag, and alloys? How much volume or weight of each type is required to be collected and at what frequency to produce the weekly sample and the monthly composite? Are the weekly samples expected to be molten steel, molten iron, and molten slag? If so, is the monthly composite expected to be melted together each week to form a homogeneous composite? Does the sample collection have to represent an equivalent proportion of the production? The Mass Balance Method, as proposed, appears to be quite onerous and expensive when applied to each source to address the sampling and analytical requirements without substantial clarification regarding the proposed sampling methodology.

Response: As discussed in the preamble, we have revised the carbon mass balance method to make it less onerous and expensive and to address many of the commenter’s concerns. If the commenter still finds the method unacceptable, we provide two other options that could be used (site-specific emission factor from stack testing or a CEMS). We tried not to be overly prescriptive on how or where or how much to sample and left that to the discretion of the owner or operator, primarily because conditions vary from plant to plant and we could not develop generic requirements that would be applicable in all cases. The owner or operator using the carbon balance approach should ensure that the sampling and analysis effort provides results that are representative of normal operations.

Commenter Name: Carl H. Batliner
Commenter Affiliation: AK Steel Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0337.1
Comment Excerpt Number: 3

Comment: In Subpart Q, §98.l74(c), Monitoring and QA/QC Requirements, we have some concerns regarding the performance test requirements. Specifically, how is it to be determined that the production rate is 90% of the "process rated capacity"? For each process unit, the actual production rate is dependent on upstream and downstream operations. The actual production rate, on a sustained basis, can rarely achieve 90% of the permitted "maximum capacity." Defining the "process rated capacity" for stack testing purposes versus permitting purposes has been a perpetual issue in the steel industry. Accordingly, clearly defining this term will be essential in determining the feasibility and practicality of utilizing this proposed condition.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Carl H. Batliner
Commenter Affiliation: AK Steel Corporation
Document Control Number: EPA-HQ-OAR-2008-0508-0337.1
Comment Excerpt Number: 4

Comment: The proposed rule states that the performance test will consist of completing at least 9 heat cycles, but it is not clear if it is for each test run or for the entire performance test (3 test runs -meaning 3 heat cycles per test run). This needs to be clarified. In addition, this proposed condition signifies the necessity for establishing a subcategory for specialty steel producers. Where the heat cycle for a basic oxygen furnace or a carbon steel heat in an EAF may be 20 minutes, a heat cycle for specialty steel can be 2 to 3 hours. Accordingly, a performance test of 9 heat cycles of 3 hours each would be very onerous and burdensome. A time equivalent performance test for specialty steel producers should be an option in lieu of the 9 heat cycles, in a manner similar to the NSPS Subpart AA a testing protocol. Also, Mini-Mill operations, especially specialty steel producers, often have multiple sources controlled by a single baghouse. For example, it is not uncommon to have one baghouse control an EAF, AOD, and LMF. Accordingly, it would be very difficult to conduct a performance test on the EAF and AOD individually.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: John L. Wittenborn et al.
Commenter Affiliation: Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0518.1
Comment Excerpt Number: 13

Comment: We believe that independent testing is not needed for the same reason that third party verification is not needed. Most EAF facilities have in-house laboratories and are capable of conducting testing independently.

Response: We agree with the commenter and have revised the rule accordingly. A more detailed response to this comment is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 20

Comment: In the ordinary course of operations, steel plants receive certified analytical results from materials suppliers which contain information required under the sampling provisions of the Proposed Rule. Requiring duplicative sampling at the steel plant to collect that same information would not result in any increase in reporting accuracy. Accordingly, we request confirmation that reporting entities can rely on analytical test results provided by suppliers. [Footnote: The Proposed Rule indirectly supports the right to rely on third-party analysis in §98.33(b)(1)(ii) where it allows the use of Tier 1 methodology when “the owner or operator does not perform, or receive from the entity supplying the fuel, the results of fuel sampling and analysis . . .”]

Response: We agree with the commenter and have revised the rule accordingly. A more detailed response to this comment is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 15

Comment: Section 98.174(b) would require sample analysis by “an independent certified laboratory.” That approach may make sense for smaller sources that lack the technical expertise for proper testing. However, steel mills are among the world’s foremost experts on managing carbon, which is an integral part of their daily business. Currently, most facilities have the sophisticated laboratory equipment and trained staff to report carbon to the ppm level. Given this expertise, requiring the use of independent laboratories would only add unnecessary costs and delay receipt of sample results. EPA can rest assured that internal sampling will be accurate because: (1) much of the resulting data will be important to proper operation and (2) the veracity of testing would be covered by compliance certification requirements.

Response: We agree with the commenter and have revised the rule accordingly. A more detailed response to this comment is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Alexander D. Menotti
Commenter Affiliation: Kelley Drye & Warren et. al LLP on behalf of the Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0656.1
Comment Excerpt Number: 13

Comment: We believe that independent testing is not needed for the same reason that third party verification is not needed. Most EAF facilities have in-house laboratories and are capable of conducting testing independently.

Response: We agree with the commenter and have revised the rule accordingly. A more detailed response to this comment is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 60

Comment: Regarding 98.174(b)(3), why the requirement for an "independent, certified laboratory". This type of analysis would typically be done at an in-house laboratory. An independent, certified laboratory is an unnecessary complication and expense.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0656.1, excerpt number 13.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 18

Comment: Section 98.174(c)(2) proposes to require sampling "for at least nine complete production cycles" for many steelmaking processes. This is inconsistent with the sampling provisions in almost every other Clean Air Act context – which typically require three one-hour sampling runs or production cycles at steelmaking processes. It is unnecessary to conduct sampling for nine production cycles to assess the GHG emissions of steelmaking sources. Rather, sampling during three production cycles that represent the operating "mode" being assessed will be sufficient to confirm accuracy and capture variability.

Response: We agree with the commenter and have revised the rule accordingly. A more detailed response to this comment is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 16

Comment: Section 98.1 74(c)(1) would require annual performance tests for all sources that use the site-specific emission factor approach. That proposal runs contrary to EPA's decision to require two performance tests every five years in the Iron and Steel MACT rules. See 40 C.F.R. §63.7821(b). If testing every 2.5 years is frequent enough to assess air toxics, it should also suffice for GHG reporting purposes. Coordinating these testing requirements will also reduce overall testing costs and limit test-related equipment downtime.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Alexander D. Menotti
Commenter Affiliation: Kelley Drye & Warren et. al LLP on behalf of the Steel Manufacturers Association (SMA) and Specialty Steel Industry of North America (SSINA)
Document Control Number: EPA-HQ-OAR-2008-0508-0656.1
Comment Excerpt Number: 11

Comment: If EPA elects to require testing of inputs and outputs, we suggest that EPA require quarterly testing only for the first year, after which testing could be repeated periodically (annually) or phased out. EPA also could require new rounds of tests if feedstock specifications were found to have changed significantly.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 17

Comment: Section 98.174(c)(1) would require performance tests to be conducted “at a production rate no less than 90 percent of the process rated capacity.” This requirement is ambiguous as applied to many steel operations. For example, there is no particular “process rated capacity” for blast furnaces or BOFs. Nor is 90% process rated capacity testing consistent with the operation of many other sources whose activity levels vary with the batch nature of steelmaking and are tied closely to upstream or downstream processes. [Footnote: Also, even if 90% process rated capacity testing was feasible and representative, many units are running well below capacity due to economic conditions. Absent true business need, it would be prohibitively expensive to increase operational capacity just for testing purposes.] To eliminate the ambiguity of this provision and increase the accuracy of performance test results, §98.174(c)(1) should require that performance tests be conducted during “normal operating conditions.”

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 23

Comment: The site-specific emission factor method option (Option 4) described in Subpart Q for iron and steel source category sources and entailing performance testing of all CO_2 emitting sources in a facility is not a realistic, feasible, or viable option for the vast majority of facilities in the iron and steel source category. While performance testing is now required for some iron and steel sources under terms of operating permits, the added testing requirements proposed and the extension of these requirements to all CO_2 sources in the facility make this option infeasible. For example, the proposed annual testing frequency exceeds testing frequency requirements that currently exist under prevailing applicable NSPS and MACT rules, which is typically every two and one-half years. In addition, the requirements for testing during nine production cycles for steelmaking processes also exceed NSPS and MACT testing requirements and would impose particularly difficult logistical problems for specialty steel producers, whose EAF heats are typically much longer than carbon steel heats. Testing of individual processes is also problematic when processes are exhausted to common control devices, such as is common for EAFs and AODs located in the same melt shop. Moreover, the requirements for testing all inputs and outputs during performance testing and monitoring other operating conditions during the tests are excessive, particularly when inputs contain insignificant or trace amounts of carbon. For continuous processes such as sinter plants or semi-continuous processes such as blast furnaces, feed materials are constantly changing or being adjusted. On the other hand, requirements for nine one-hour tests at 90% capacity for continuous and closely controlled processes such as taconite indurating furnaces is excessive and is not likely to add useful additional information. Demands for conducting performance tests at 90% of “process rated capacity” are also problematic because production rates are often dictated by upstream and downstream production levels. For many iron and steel sources, production capacity is highly dependent on process inputs, operating practices, specifications for products, modifications to processing equipment over time, and numerous other factors, and there is no parallel to nameplate capacity as there is with fuel combustion devices such as boilers. It is also unclear whether performance testing would be required on a continuous basis or over some period of time. For these and many other reasons, not the least of which is the excessive cost of conducting performance tests for all operations in a facility, we reject this as a meaningful reporting option.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Lawrence W. Kavanagh
Commenter Affiliation: American Iron and Steel Institute (AISI)
Document Control Number: EPA-HQ-OAR-2008-0508-0695.1
Comment Excerpt Number: 21

Comment: The CO_2 emissions calculation methodology described in Subpart Q for EAFs is to sum the CO_2 equivalent of carbon contained in iron, scrap, flux materials, carbon electrodes, and “carbonaceous material” and subtract carbon contained in the steel product and slag. All of these components are to be sampled weekly with monthly composites averaged to derive annual emissions. Discussion of the complexities and impracticality of this sampling, analytical, and reporting frequency is contained in our comments on the proposed iron and steel source category’s reporting requirements. Since most EAFs are not part of integrated steel plants, any carbon contained in pig iron charged into the furnace is not separately accounted for within the facility as in the case of BOFs. However, CO_2 emissions attributable to pig iron and other carbon-bearing iron-bearing inputs can be accounted for with reasonable estimates and without the burdensome sampling analytical methodology described. As in the case of BOFs, burnt lime, burnt dolomite and slag contain no appreciable carbon and need not be included in the methodology. The inclusion of calculations for CO_2 attributed to carbon in scrap and steel products is even less important for EAFs than for BOFs because the furnace charge is dominated by scrap and because the carbon content of the scrap and steel produced are not dissimilar. It is unproductive and unnecessarily costly and burdensome to require sampling and analysis of an input and output that essentially offset each other. In summary, whatever CO_2 emissions may be associated with EAF or AOD steelmaking can be readily subsumed by a facility-wide carbon balance approach, and a separate calculation methodology is not justified, much less on the scale of sampling and analysis proposed.

Response: The response to these comments is provided in the preamble section III, section Q, Iron and Steel Production.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 59

Comment: Regarding 98.174(b)(1), it is not feasible to measure "each process output" other than steel, slag and possibly emission control dust. Exhaust gases typically are not measurable accurately in the absence of a CEMS system.

Response: For the carbon balance approach, we do not require the measurement of exhaust gases, such as for volumetric flow rate and CO_2 concentration.

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7. PROCEDURES FOR ESTIMATING MISSING DATA

Commenter Name: Keith A. Nagel
Commenter Affiliation: ArcelorMittal USA and Severstal North America
Document Control Number: EPA-HQ-OAR-2008-0508-0496.1
Comment Excerpt Number: 19

Comment: Section 98.175 states that there is "no allowance[..] for missing data for facilities that estimate emissions using the carbon balance procedure" and that "100 percent data availability is required." This requirement is unrealistic for intricate operations like integrated steel plants that have many inputs and outputs to evaluate. Instead of requiring perfection, the Proposed Rule should treat missing carbon balance method data just like any other missing data under the rule – by allowing estimation using the data points immediately before and after the gap. See §98.185(a).

Response: We have revised the rule to incorporate procedures for missing data for the monthly mass rates of process inputs and outputs for the carbon balance approach, and we have added conforming reporting requirements on the use of missing data. However, we changed the requirement for sampling for carbon content to an annual frequency; consequently, the missing data procedures for this parameter is a re-test because there is ample opportunity to perform the sampling and analysis (or repeat it if necessary for some unforeseen reason) sometime within the reporting year.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 64

Comment: In 98.175, no explanation of why missing data are allowable for combustion sources using carbon calculations, but not for iron and steel and other sectors. If a sample is missed, the next available sample should be used. Presently, EPA's guidance means that if a missed sample occurs, the facility would report "zero" emissions.

Response: See the response to comment EPA-HQ-OAR-2008-0508-0496.1, excerpt number 19.

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8. DATA REPORTING REQUIREMENTS

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 65

Comment: In 98.176(b), output data typically not available for gases except with CEMS. Nucor also believes that process input/output data is likely confidential business information (CBI).

Response: We have clarified in the carbon balance approach that output data for CO_2 in the exhaust gas is not a required measurement – this is estimated from the carbon balance. Other commenters noted that in some cases, CO may be generated in steelmaking furnaces and not subsequently converted to CO_2. These commenters asked that they be allowed to subtract carbon in CO in the carbon material balance in these cases, and we agreed and revised the rule accordingly. We understand that input/output data may be CBI; however, we need input/output data for verification purposes because it will allow us to reproduce the calculations and verify the reported emissions. EPA's procedures for handling and protecting CBI are discussed in more detail in preamble. We have reviewed CBI comments received across the rule (both general and subpart-specific comments) and our response is discussed in Section II.R of this preamble and in the comment response document for legal issues..

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)

Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 66

Comment: In 98.176(d), what value does production capacity give? The agency already has actual production values. See § 98.176(c).

Response: We agree and have revised the rule to no longer require reporting production capacity (only actual production). However, this information is important to verification in that it can establish a reasonable range for reported emissions. While this information is publicly available, published capacities are often incorrect. For these reasons, we have moved this parameter to recordkeeping from the data reporting section.

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 67

Comment: In 98.176(e), what value does annual operating hours give? The agency already has actual production. See § 98.176(c). GHG emissions are driven by production, not operating hours for steel manufacturing units, and by fuel consumption, not operating hours, for combustion units.

Response: We agree and have revised the rule to no longer require reporting annual operating hours. However, this parameter is still important for emissions verification and we have moved this parameter to recordkeeping. This information can help to verify anomalies in emissions data if there were temporary shutdowns, etc.

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9. RECORDS THAT MUST BE RETAINED

Commenter Name: Steven J. Rowlan
Commenter Affiliation: Nucor Corporation (Nucor)
Document Control Number: EPA-HQ-OAR-2008-0508-0605.1
Comment Excerpt Number: 68

Comment: In 98.177, the requirement to retain documentation of the process used to collect the necessary data should be deleted because (1) the data are presented; (2) the calculation are presented and this is sufficient to enable verification if needed. Documentation of the process used is vague, provides insufficient guidance to the regulated community as to what is required, is burdensome to write for each unit or activity that may be present at the facility, will likely be obsolete very quickly, requiring continuous upkeep, and diverts resources away from actually completing the task at hand and all other environmental regulatory functions. Additionally, facilities typically will have no technical bases for estimating accuracy beyond report of calibration providers.

Response: The requirement in §98.177(f) to retain documentation of the process used to collect the data, specifically an explanation of how company records or measurements are used to determine the mass rates of inputs and outputs for the carbon balance and procedures used to ensure the accuracy of fuel measurements, are needed for verification purposes. This information provides insight into the credibility of the mass rate determinations and can be used to identify the weaknesses and strengths of the procedures and in addition, assist in evaluating an important component of the overall accuracy of the reported emissions. For the most part, the documentation is expected to be an initial (one-time) event that will only be updated annually if the procedures change. This documentation will be useful also for verification if the procedures change over time, and as accuracy improves or degrades, to identify changes in reported values over time that may be due merely to a change in the measurement methods.

10 OTHER SUBPART Q COMMENTS

Comment: Generally across the rule, commenters requested clarificaton on use of standards and in some cases proposed alternative standards for determining particular parameters used to estimate emissions**.**

Response: For Subpart Q, the key parameters where we have proposed a specific list of standards for determining carbon contents of process inputs and outputs. We also allow facilities to use supplier data if available to minimize the testing burden. Furthermore, we proposed a specific EPA method for determining site specific emission factors. There are limited available methods for determining carbon contents of the inputs and outputs and they are listed in the rule. The use of these standards and the EPA method assures consistency and comparability in estimates from sources. The response to comments proposing the use of defaults as an alternative to proposed standards for determining actual carbon contents based actual material consumption or development of site-specific emission factor for various processes is provided in the preamble section III, section Q, Iron and Steel Production.