

Illinois Environmental Protection Agency  
Bureau of Air  
Permit Section

Response to Comments on the Planned Issuance of a  
Revised Clean Air Act Permit Program (CAAPP) Permit to  
United States Steel Corporation  
Granite City Works  
Granite City, Illinois

March 4, 2013

Source I.D. No.: 119813AAI  
Permit No.: 96030056

Table of Contents

Decision

Background

Opportunity for Public Comment

Availability of Documents

Comments with Responses

For Additional Information

Summary of Significant Changes between the  
Draft and the Issued Revised Permits

## DECISION

On March 4, 2013, the Illinois EPA issued a revised Clean Air Act Permit Program (CAAPP) permit to United States Steel Corporation - Granite City Works (US Steel) in Granite City, Illinois.

## BACKGROUND

US Steel operates an integrated iron and steel mill in Granite City, Illinois. Because of the type and quantity of emissions generated by this source, US Steel is required to have an operating permit under Illinois' Clean Air Act Permit Program (CAAPP) administered by the Illinois EPA.

The CAAPP generally requires that major stationary sources of regulated air pollutants apply for and obtain a CAAPP permit for their operations. CAAPP permits contain conditions identifying all applicable requirements under the federal Clean Air Act and Illinois' Environmental Protection Act (Act).<sup>1</sup> Testing, monitoring, compliance procedures, recordkeeping and reporting requirements are also established, as required or necessary, to assure compliance and accomplish the purposes of the CAAPP. The terms and conditions of a CAAPP permit are enforceable by the Illinois EPA, USEPA and the public.

The Illinois EPA previously issued a CAAPP permit to US Steel on September 3, 2009 (2009 Permit). In the 2009 Permit, among other actions, the Illinois EPA initially carried over emission limits established in various construction permits, including emission limits originally established in Construction Permit/PSD Approval No. 95010001.

A public petition was filed with USEPA on October 1, 2009 requesting that it object to the 2009 Permit. On January 31, 2011, USEPA took final action on the petition, granting it in part and denying it in part (2011 Order). Following a review of USEPA's 2009 Order, the Illinois EPA issued a revised CAAPP Permit to US Steel on May 2, 2011 (2011 Permit). In the 2011 Permit, the Illinois EPA not only explained in greater detail the approach to and use of emission factors for certain emission limits that originated in construction permits, notably Construction Permit/PSD Approval No. 95010001. Various enhancements were also made to monitoring, testing, compliance procedure, recordkeeping and reporting requirements so that Periodic Monitoring in the 2011 Permit would be sufficient to ensure compliance with applicable requirements.

---

<sup>1</sup> "Applicable requirements" includes the terms and conditions of preconstruction permits issued under regulations approved by USEPA in accordance with Title I of the Clean Air Act. Preconstruction permits, commonly referred to in Illinois as construction permits, derive from the New Source Review (NSR) permit programs required by Title I of the CAA. These programs also encompass state construction permit programs for projects that are not major. These limits are commonly referred to as "Title I" conditions.

The incorporation, or carry-over, of terms or conditions from previous Title I permits into Title V permits typically does not occur on a wholesale basis. Recognizing that construction permits may frequently contain obsolete or extraneous terms and conditions, USEPA has emphasized that only "environmentally significant terms" from previous preconstruction permits must be carried over into Title V permits. See, White Paper for Streamlined Development of Part 70 Permit Applications, dated July 10, 1995.

A second public petition was filed with USEPA on August 16, 2011 requesting that it object to the 2011 Permit. On December 3, 2012, USEPA took final action on this petition, granting it in part and denying it in part (2012 Order). Following a review of USEPA's 2012 Order responding to the petition, consideration of comments from US Steel and the public, the Illinois EPA is now issuing a revised CAAPP Permit (2013 Permit or Revised Permit) to US Steel. Consistent with the 2012 Order, the Illinois EPA has made available in the Revised Permit the initial emission factors that US Steel is currently using to demonstrate compliance with certain emission limits originally established by Construction Permit/PSD Approval No. 95010001. In addition, the Revised Permit enhances Periodic Monitoring originally included in the 2009 and 2011 Permits, further detailing how emission factors will be reviewed and, if necessary, updated in the future to assure that appropriate emission factors are used to determine compliance with subject emission limits.

In conjunction with the issuance of this Revised Permit, the Illinois EPA has also given further attention to the subject of malfunction/breakdown and startup, as addressed by USEPA in the 2012 Order. To assist the Illinois EPA, US Steel supplied additional information to support its requests for permission to make claims related to continued operation of particular emission units during malfunction/breakdown events in violation of certain state emission standards. US Steel also supplied additional information to support its similar requests related to startup of particular units. US Steel has provided all the information that 35 IAC 201.261 requires from a source that is requesting permission to make claims related to continued operation with excess emission during a malfunction/breakdown or startup event. The Illinois EPA previously explained in the Statement of Basis accompanying the Draft Revised Permit why the Revised Permit should continue to provide the requested authorizations consistent with 35 IAC 201.262.

#### **OPPORTUNITY FOR PUBLIC COMMENTS**

The issuance of this Revised Permit was preceded by a 10-day comment period in accordance with Section 39.5(9)(g) of the Act. This comment period began on February 5, 2013 and ended on February 14, 2013. Before the start of the comment period, the Illinois EPA made available a copy of the Revised Permit that it planned to issue. The planned Revised Permit and a Statement of Basis were mailed to persons who participated in the earlier comment periods. These documents and other relevant documents were also provided to the Six Mile Regional Library District in Granite City and the Illinois EPA's Offices in Collinsville and in Springfield and made available for review by the public at these three locations.

#### **AVAILABILITY OF DOCUMENTS**

Notice of the issuance of this Revised Permit is being mailed to persons who participated in the recent comment period. The Revised Permit that has been issued and this Response to Comments will also be made available for reviewing by the public at the Illinois EPA's Regional Office in Collinsville [618/346-5120], the Illinois EPA Headquarters in Springfield [217/782-7027] and at the main library of the Six Mile Regional Library District in Granite City [618/452-6238]. A printed copy of the documents can be obtained free of charge by contacting Brad Frost at the Illinois EPA's Springfield

Headquarters by telephone [888/372-1996 Toll Free - Environmental Helpline; 217/782-7027 - desk line; 217/782-9143 - TDD], by facsimile [217/524-5023] or by email[brad.frost@illinois.gov].

### COMMENTS WITH RESPONSES

1. In the 2012 Order, USEPA directed the Illinois EPA to correct the absence of Periodic Monitoring to ensure compliance with certain "emission factor limits" and "maximum emissions limits" in the CAAPP Permit for USS-GCW. Unfortunately, the Draft Revised Permit would continue to use the same emission factors to ensure compliance with permit limits.

This comment fails to recognize the significant enhancements related to use of emission factors that the Illinois EPA has now made in response to the 2012 Order,<sup>2</sup> as were proposed in the Draft Revised Permit. In particular, the Revised Permit appropriately responds to each of the specific deficiencies in the 2011 Permit identified by USEPA with respect to US Steel's use of emission factors to demonstrate compliance with the subject emission limits. Most significantly, the Revised Permit more clearly sets forth the actions that US Steel must take to review and, if necessary, update the emission factors that it uses to demonstrate compliance with the subject emission limits. For emission units for which stack testing is feasible and appropriate, these actions include review of the results of such testing. For emission units for which stack testing is not feasible or appropriate, it includes periodic review of relevant information related to the emissions of such units. As related to US Steel's use of emission factors with respect to the subject limits, the Revised Permit also includes additional provisions to facilitate supervision of US Steel's use of emission factors by the Illinois EPA, as well as USEPA, consistent with the USEPA's directives in the 2012 Order.<sup>3</sup>

In addition, as will be discussed in more depth later, this comment improperly suggests that the Revised Permit specifies the emission factors that US Steel is entitled to or "may" use to demonstrate compliance with the subject limits. The Revised Permit does not include such emission factors nor did the 2012 Order direct that the Revised Permit include them. Rather the Revised Permit reflects enhancements to US Steel's use of emission factors to demonstrate

---

<sup>2</sup> By way of historical background, USEPA objected to the 2009 Permit on the ground, among others, that it lacked Periodic Monitoring to ensure compliance with certain emission limits in the permit insofar as it relied on emission factors from unspecified sources. See, 2011 Order. The Illinois EPA could not change the relevant permit conditions because, as explained by the Illinois EPA in its response to the 2011 Order, the "emission factors" in the subject conditions in the 2009 Permit are "emission limits," which were established in Construction Permit/PSD Approval 95010001. Accordingly, in the revised CAAPP Permit issued in May 2011, in response to the 2011 Order, the Illinois EPA added provisions to provide a mechanism to assure compliance with the subject emission limits. See, 2011 Permit. The USEPA's 2012 Order addresses the adequacy of the provisions setting forth that mechanism, as well as the ability of the public to comment on the "current" emission factors that US Steel is initially using to determine compliance with the subject emission limits.

<sup>3</sup> The various enhancements that would be and have now been made to the 2011 Permit by the issuance of the Revised Permit are discussed in Section III of the Statement of Basis that was prepared to accompany the Draft Revised Permit.

compliance with the subject emission limits. These emission factors would be only one component of the Periodic Monitoring for the subject emission limits. They would be accompanied by other Periodic Monitoring required for the emission units that are subject to these limits, as these emission units are also subject to various regulatory emission standards that are accompanied by requirements for Periodic Monitoring.

2. The additional information that has now been provided by the Illinois EPA regarding the emission factors plainly shows their inherent inability to determine whether USS-GCW is complying with the subject emission limits. The emission factors are calculated to "document" that USS-GCW is complying with its emission limits without any reality checks required. The Draft Revised Permit would list current emission factors for all emission units with "emission factor limits." Every current emission factor in the Draft Revised Permit is equal to its corresponding "emission factor limit." Therefore, the Draft Revised Permit would place the USS-GCW in compliance with all "emission factor limits" by default. In other words, the Draft Revised Permit would fail to require Periodic Monitoring of actual emissions in order to demonstrate compliance with "emission factor limits."

This comment does not identify a flaw in the Revised Permit relative to the role of emission factors in demonstrating compliance with the subject emission limits. Rather, the comment displays a lack of understanding on the role that emission factors have in the 2011 Permit, as now enhanced with the issuance of the Revised Permit.

In particular, the comment correctly observes that US Steel's current emission factors, as were listed in Attachment 3 of the Draft Revised Permit, and now listed in the Revised Permit, are identical to the subject emission factor limits. However, the comment then incorrectly assumes that this automatically places USS-GCW in compliance with the emission factor limits. This would only be the case if US Steel could rely on emission factors listed in Attachment 3 irrespective of other information that demonstrates that the factors understate actual emissions. The Revised Permit does not provide that US Steel can rely on the listed emission factors in this manner.<sup>4</sup> Attachment 3 simply provides a listing for informational purposes, as directed by the 2012 Order, of the "working" emission factors that US Steel is currently using to determine compliance with the subject limits.<sup>5</sup>

Moreover, in the language of this comment, the listed emissions factors in Attachment 3 of the Revised Permit are subject to "reality checks." In particular, as stack testing is practicable and reasonable for certain emission units, US Steel must confirm compliance with the emission factor limits through stack testing. As stack testing is not feasible or appropriate for certain other emission units, US Steel must

---

<sup>4</sup> In addition, the Revised Permit does not preclude the Illinois EPA or USEPA from pursuing US Steel if it was determined that an emission factor being used by US Steel understates actual emission and, considering credible evidence, an emission factor limit is likely being violated. As will be discussed later in this response, this is illustrated by Illinois EPA's current enforcement action against US Steel for violations of two sets of emission factors that US Steel is using for emissions of NOx and VOM from its Electrostatic Precipitator at the Basic Oxygen Furnace.

<sup>5</sup> A summary of the basis and support for these emission factors, as the 2012 Order directed the Illinois EPA to make publically available, was provided in Table 1 of the Statement of Basis.

confirm compliance with emission factor limits by review of relevant new information that becomes available, as now explicitly required by new Condition 5.13(c) (ii). As the Illinois EPA or USEPA determines that the review of specific emission factors by US Steel has been inadequate or further review is appropriate, new Condition 5.13(e) now provides a formal structure to require US Steel to undertake such review. These "reality checks" will provide assurance that US Steel uses appropriate emission factors on an ongoing basis to determine compliance with the subject emission limits.<sup>6</sup>

More generally, the comment appears to assume that the use of emission factors is intrinsically flawed because the emission factors listed in Attachment 3 of the Draft Revised Permit, and now the Revised Permit, are identical to the subject emission factor limits. While Attachment 3 is correctly characterized, the assumption that the permit is flawed is incorrect. US Steel has elected to proceed conservatively, continuing to use the highest permissible emission factors to demonstrate compliance with the subject emission limits. This is its prerogative. Moreover, based on the results of recent stack testing, US Steel could also use emission factors for certain units that are substantially below the applicable permit limits. For example, for the casthouse baghouse for the blast furnaces, based on the results of recent testing, US Steel could arguably use an emission factor that is about half the applicable emission factor limit and still not understate the actual emissions of this emission unit.<sup>7</sup> However, US Steel's exercise of its prerogative to use the highest permissible emission factor to demonstrate compliance with the subject limits, instead of a lower factor that more closely reflects the results of recent stack testing, does not show that the Revised Permit is flawed.

---

<sup>6</sup> Indeed, as will be discussed later in this document, the Illinois EPA is currently engaged in the initial stage of possible enforcement against US Steel for violations of two sets of limits based on "reality checks" for the emission factors that were being used for those limits. The action involves the working emission factors that US Steel is using for the emissions of nitrogen oxides (NOx) and volatile organic material (VOM) from the electrostatic precipitator (ESP) that controls particulate emissions of the Basic Oxygen Furnace (BOF). In the Revised Permit that has been issued, this is now appropriately indicated in Attachment 3 by the notes that accompany the two emission factors that are at issue.

<sup>7</sup> For the casthouse baghouse, stack testing in January 2010 and March 2012 measured actual PM emissions that were 6 and 28 percent of the emission factor limit for PM/PM<sub>10</sub>, 0.0703 pounds per ton of iron. Even if one doubled the higher test result, the resulting source-specific emission factor would only be 0.040 pounds per ton of iron.

Note, as related to its demonstration of compliance with the subject emission limits, it would be unsound for US Steel to simply rely on the emission rate measured during the most recent stack test, without applying some factor of safety to account for day-to-day variation in operation and emissions. During subsequent operation of a unit following the stack test, emissions should be expected to vary, with the actual rates of emissions potentially being both above and below the rate measured during the stack test. Indeed, the results of the two recent tests for the casthouse baghouse show such variation in emissions.

Moreover, as US Steel's obligation with respect to the subject emission limits is to address compliance with those limits, US Steel may use an emission factor that is higher than the actual emission rate, i.e., an emission factor that does not understate emissions. In this regard, US Steel's obligation with respect to the subject limits is different than its obligation when preparing its Annual Emission Report, in which it is required to provide data for the actual emissions of the USS-GCW.

3. The maximum emissions limits in the 2009 Permit, which address annual emissions, are simply the product of the emission factor limits, which are expressed in pounds per ton of production (e.g., ton of iron or steel), and USS-GCW's permitted annual production. Therefore, so long as USS-GCW does not exceed its permitted annual production, it *cannot* exceed any of its maximum emissions limits. As a result, the only "monitoring" necessary to demonstrate compliance with the maximum emissions limits is recordkeeping for the annual iron and steel production. In other words, the Draft Revised Permit would fail to require Periodic Monitoring of *actual emissions* in order to demonstrate compliance with the maximum emissions limits in the 2009 Permit. As such, the maximum emissions limits lack Periodic Monitoring and are not enforceable as a practical matter.

**This comment does not show that the Draft Revised Permit would not provide Periodic Monitoring for the maximum emission limits. The comment accurately describes the way that the maximum emission limits were developed during the processing of the application for Construction Permit/PSD Approval 95010001. However, the comment overlooks the fact that if emissions exceed an emission factor limit, USS-GCW has violated that limit. If such a violation occurs, USS-GCW may also have violated the maximum emission limit depending on the actual level of production.<sup>8</sup> Thus, the Periodic Monitoring required for the maximum emission limits builds on top of the Monitoring for the emission factor limits. In this regard, it is noteworthy that this comment does not suggest an alternative approach to Monitoring for the maximum emission limits that would not rely on an emission factor or other value of the emission rate of an emission unit that addressed the day-to-day operation of the unit.**

4. The defects that would remain in the CAAPP Permit for USS-GCW with the Draft Revised Permit are not mere technicalities. US Steel should implement meaningful Periodic Monitoring to assure itself, regulators, and the public that the USS-GCW is operating in compliance with applicable emission limits. The Illinois EPA should correct these defects in the Revised CAAPP Permit that is issued for USS-GCW.

**This comment does not show that the CAAPP Permit for USS-GCW does not require meaningful Periodic Monitoring for the subject emission limits. The CAAPP Permit for USS-GCW appropriately addresses US Steel's use of emission factors as a necessary and appropriate mechanism to verify compliance with the subject limits. This is because stack testing is not feasible for many of the emission units that are subject to such limits. For the emission units for which stack testing is required, continuous emissions monitoring is not feasible or appropriate for such units as a means to address the subject limits. In these circumstances, the use of emission factors is appropriate to address emission limits, which limits were, in fact, developed using emission factors.**

5. The Title V permits must require "Periodic Monitoring" to assure compliance with applicable requirements. In the 2011 Order, USEPA explained:

---

<sup>8</sup> This is aptly illustrated by Illinois EPA's current enforcement action against US Steel for violations of two sets of emission factors that US Steel is using for emissions of NOx and VOM from the ESP at the BOF.

With few exceptions, EPA does not recommend the use of emission factors to develop source-specific permit limits or to determine compliance with permit requirements.

2011 USEPA Order at 14, *citing In the Matter of Tesoro Refining and Marketing Co., Martinez, California Facility*, Petition Number IX-2004-6, March 15, 2005 (Tesoro Order)

The Tesoro Order is of direct relevance to this case, because both involve considerable reliance on emission factors from or based on USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42).

An AP-42 emission factor is a value that roughly correlates the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. AP-42 Fifth Edition, Volume I, Introduction. The use of these emission factors may be appropriate in some permitting applications, such as establishing operating permit fees. *Id.* EPA, however, has also stated that AP-42 factors do not necessarily yield accurate emissions estimates for individual sources. *See, In the Matter of Cargill, Inc.*, Petition IV-2003-7 (Amended Order) at 7, n.3 (Oct.19, 2004); *In re: Peabody Western Coal Co.*, CAA Appeal No. 04-01, at 22-26 (EAB Feb. 18, 2005). Because emission factors essentially represent an average of a range of facilities and of emission rates, they are not necessarily indicative of the emissions from a given source at all times; with a few exceptions, use of these factors to develop source-specific permit limits or to determine compliance with permit requirements is generally not recommended. *Id.*; AP-42 Fifth Edition, Volume I, Introduction. The District's reliance on the emission factors in making its monitoring decisions is therefore problematic.

Tesoro Refining Order, at 32.

**This comment does not demonstrate that the role of AP-42 emission factors for certain emission limits is improper. First, the comment misrepresents the breadth of the USEPA's decision in the Tesoro Refining Order. That Order involved the use of AP-42 emission factors for VOC and PM for cooling towers at a petroleum refinery as a means to determine compliance with emission standards. Emissions of VOC and PM from cooling towers may reasonably be calculated indirectly from design and operational data for the cooling tower, including actual data for the VOC and solids content of the water circulating in the cooling tower that can be readily obtained from sampling the water.<sup>9</sup> As such, the Tesoro Refining Order did not address emission units whose emissions could not readily or practicably be determined through measurements, as is the case for many of the emission units at USS-GCW for which emission factors are being used to determine compliance with emission limits in the 2009 Permit.**

**More importantly, while citing to the 2011 Order, the comment ignores the USEPA's actual action in the 2012 Order. Stated simply, the 2012**

---

<sup>9</sup> In this regard, the VOC and PM emissions of cooling towers at petroleum refineries can be determined by a form of modified material balance. This is not the case for the emission units at the USS-GCW that are subject to emission limits, as discussed in Footnote 21 of the Statement of Basis.

Order does not prohibit the use of emission factors in the 2011 Permit for USS-GCW.<sup>10</sup> Rather, the USEPA found that certain elements surrounding the use of emission factors were deficient, as specifically identified in the 2012 Order. These specific deficiencies have been addressed by the issuance of the Revised Permit, as discussed in Section III of the Statement of Basis that accompanied the release of the Draft Revised Permit and further discussed in this Responsiveness Summary.

6. In the Introduction to AP-42, USEPA warns of the risks in using emission factors to set limits or to attempt to determine compliance:

Emission factors in AP-42 are neither EPA-recommended emission limits ... nor standards .... Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have emission rates greater than the emission factor and the other half will have emission rates less than the factor. ...

. . . .

[S]ource-specific tests or continuous emission monitors can determine the actual pollutant contribution from an existing source better than can emission factors. Even then, the results will be applicable only to the conditions existing at the time of the testing or monitoring. To provide the best estimate of longer-term (e. g., yearly or typical day) emissions, these conditions should be representative of the source's routine operations.

AP-42, Fifth Edition (Jan. 1995), Introduction at 2-3.<sup>11</sup>

This analysis applies to all emission factors, whether derived from AP-42 or from source-specific tests. Without a solid factual link between the emission factor and actual emissions, emission factors are not more than a rough estimate and are certainly not a basis for determining compliance with legally-binding limits.

**This comment does not demonstrate a flaw in the 2011 Permit with respect to the role of emission factors. Rather the comment selectively parrots the advice of USEPA in the Introduction to AP-42. The comment also does not consider the implications of USEPA's advice for the CAAPP**

---

<sup>10</sup> It is noteworthy that the general approach taken in the 2011 Permit to determining compliance with permit limits on the amount of emissions, relying upon calculations using emission factors, has previously been upheld by USEPA. See, Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Operating Permit, In the Matter of East Kentucky Power Cooperative, Inc. (December 14, 2009). In East Kentucky Power Cooperative, USEPA did not reject the use of established emission factors for the purpose of calculating emissions from certain coal handling operations and determining compliance with an applicable state emission standard. Indeed, for the Dale Power Plant, USEPA accepted the use of an emission factor and efficiency for the accompanying control device that were actually specified in the Title V permit for the plant.

The USEPA Order in the Matter of East Kentucky Power Cooperative is discussed in the 2011 Statement of Basis accompanying the preparation of the Draft of the 2011 Revised Permit. For example, see page 25 of the 2011 Statement of Basis.

<sup>11</sup> Available at <http://www.epa.gov/ttn/chief/ap42/c00s00.pdf>

permit for USS-GCW. Upon examination, it is apparent that the Illinois EPA has proceeded in accordance with the recommendations in the Introduction to AP-42.

For the emission units that are at issue for which stack testing is feasible, the permit generally requires source-specific testing. To accompany such testing, the permit also generally requires operational monitoring and work practices, accompanied by relevant recordkeeping, to verify that the control equipment for those units is operated in a manner that is consistent with the operational conditions during emissions testing. In this regard, the Introduction to AP-42 does not advise against the use of data from source-specific stack testing to determine actual emissions. Rather, the Introduction to AP-42 cautions that such testing may not be sufficient by itself. Consideration must also be given to the operational conditions during stack testing. In the context of regulation and permitting, such consideration may logically lead to other compliance requirements that address the ongoing operation of the emission unit, as has been included in this permit.

For the emission units that are at issue for which stack testing is not feasible or practicable, the permit would directly rely on appropriate emission factors from AP-42 and other sources as the tool to quantify the emissions of those units. The Introduction to AP-42 acknowledges the need to use these types of emission factors in circumstances where stack testing is not feasible or practicable. Indeed, emission factors are recognized as a fundamental tool in air quality management and permitting. Accordingly, the Introduction to AP-42 generally supports the use of traditional emission factors for the subject emission units at the USS-GCW for which such factors would be used.<sup>12</sup>

Emission factors and emission inventories have long been fundamental tools for air quality management. Emission estimates are important for developing emission control strategies, determining applicability of permitting and control programs, ascertaining the effects of sources and appropriate mitigation strategies, and a number of other related applications by an array of users, including federal, state, and local agencies, consultants, and industry. Data from source-specific emission tests or continuous emission monitors are usually preferred for estimating a source's emissions because those data provide the best representation of the tested source's emissions. However, test data from individual sources are not always available and, even then, they may not reflect the variability of actual emissions over time. Thus, emission factors are frequently the best or only method available for estimating emissions, in spite of their limitations.

---

<sup>12</sup> The role of emission factors for emission units for which source-specific data cannot be obtained, e.g., emission units which cannot be tested, is also further discussed later in the Introduction to AP-42, "If representative source-specific data cannot be obtained, emissions information from equipment vendors, particularly emission performance guarantees or actual test data from similar equipment, is a better source of information for permitting decisions than an AP-42 emission factor. When such information is not available, use of emission factors may be necessary as a last resort. Whenever factors are used, one should be aware of their limitations in accurately representing a particular facility, and the risks of using emission factors in such situations should be evaluated against the costs of further testing or analyses." Introduction to AP-42, page 3.

Introduction to AP-42, page 1.

In summary, the Introduction to AP-42 actually supports the use of emission factors in the manner in which they have been used in the 2011 Permit. It is also fully consistent with the 2012 Order, as USEPA has not precluded US Steel's use of emission factors, both source-specific and non-source-specific, as tools to determine compliance with the subject emission limits.

7. The Draft Revised Permit would not contain any Periodic Monitoring to confirm compliance with any of the emission factor limits. The 2011 Permit does require infrequent stack testing for some pollutants at some of the subject emission units.<sup>13</sup> However, none of this Monitoring directly measures the emission factor limits. All of the testing in the 2011 Permit is based on standard USEPA test methods, which yield measurements of emissions in pounds per hour.<sup>14</sup> The Statement of Basis and the Draft Revised Permit are silent on how emissions measured in pounds per hour should be converted into emission factors in pounds per ton for purposes of determining compliance with the emission factor limits. Thus, the Draft Revised Permit would not provide Monitoring sufficient to ensure compliance with the emission factor limits.

This comment does not show that the Revised Permit would lack Periodic Monitoring for emission limits expressed in pounds per ton. The fact that stack tests do not directly measure emissions in pounds per ton does not show that Periodic Monitoring is not present for such limits. Likewise, the fact that the Illinois EPA has not explained how stack test results that are expressed in pounds per hour are converted to emissions in pounds per ton does not show that the CAAPP Permit for USS-GCW would be deficient.<sup>15</sup> Compliance with emission factor limits for emission units for which stack testing is performed can be readily verified by such testing by converting the results of those tests into an emission rate in pounds per ton and comparing that emission rate to the applicable limit.

8. "Emission factor limits" are based on the throughput of certain materials (e.g., iron pellets, iron, and steel). The conversion of emission test results in pounds per hour to pounds per ton is not straightforward and requires a simultaneous measurement of production, which is not otherwise measured by USEPA test methods, plus calculations and assumptions not set forth in the permit repository. However, the Draft Revised Permit would fail to specify how the throughput of these materials should be measured for each subject emission units and where in the process measurement will occur for each process or collection of processes to determine compliance with both

---

<sup>13</sup> See the table accompanying these comments.

<sup>14</sup> The 2009 Permit requires stack testing to be conducted using, as appropriate USEPA Methods 1 through 4 coupled with the following USEPA Methods: Methods 5, 201 or 201A for PM and PM10; Method 6 for SO<sub>2</sub>; Method 7 for NO<sub>x</sub>; Method 25 for VOM; Methods 7E or 19 for NO<sub>x</sub>; and Method 29 for lead.

<sup>15</sup> Incidentally, emission rates, in pounds per hour, are not directly measured by USEPA test methods. Hourly emission rates are calculated from various measurements made during testing. Typically, the hourly emissions rates are calculated by multiplying the concentration of the pollutant in the exhaust as measured by one test method and the hourly exhaust gas flow rate as measured by other test methods.

the "emission factor limits" and maximum emissions limits. Thus, the subject conditions remain unenforceable.

Notwithstanding the claim made by this comment, conversion of results of stack testing in pounds per hour to emission rates in pounds per ton is a straightforward matter. Such conversions are routinely made in conjunction with stack testing to address emission limits and emission standards that are expressed in pounds per ton and terms other than pounds per hour. USEPA has not found it necessary to develop a formal methodology by which data is measured. This is most likely because production data is of direct interest to sources. As such, this data is routinely collected by sources by methods that are well established and it is a simple matter to provide such data for the periods during which stack testing is conducted.

9. The conversion of emission data in pounds/hour to pounds/ton is not straightforward. For example, in Condition 7.5.6(a) of the 2009 Permit, is "steel" the amount of steel product sold based on invoices less inventory, the amount of liquid steel tipped from the ladle, the amount of steel cast, "net steel," or some other definition? If it is "net" steel, then what is "net" steel and how/where is it measured? Is the amount of steel used to calculate emissions from the BOF ESP the same as the amount of steel used to calculate emissions from argon stirring or slab ripping? Where and how are each of the materials measured? These fundamental questions, essential to convert results of stack tests in pounds/hour into emission rates in pounds/ton for comparison to the "emission factor limits," are not specified. Thus, they could be subject to dispute in enforcement actions, rendering the "emission factor limits" unenforceable as a practical matter.

The concerns identified in this comment do not make the subject emission limits in pounds per ton unenforceable. In the absence of an explicit provision to the contrary, the production of an emission unit, as needed to convert emissions in pounds per hour to emissions in pounds per ton, is the actual production without any adjustments. Similarly, if the production rate of a unit could be measured at either the inlet or outlet of the unit, in the absence of an explicit provision to the contrary, the production of the unit is determined from the larger rate. Moreover, the fact that certain provisions may be subject to different interpretations and a potential cause for disagreement in an enforcement action does not render such provisions unenforceable.<sup>16, 17</sup>

10. The approach taken in the Draft Revised Permit to determining compliance with maximum emissions limits (i.e., multiplying an emission

---

<sup>16</sup> It is not uncommon for differences in interpretation to be a factor in enforcement actions. For example, a key aspect of USEPA's ongoing enforcement initiative for coal-fired utility boilers is the correct interpretation of the phrase "routine maintenance and repair" in the New Source Review Program under the Clean Air Act. The operators of certain coal-fired utility boilers argue that changes that were made to those boilers are "routine maintenance and repair" and therefore not modifications. The USEPA takes the opposing view. The existence of this disagreement has not prevented the USEPA from conducting enforcement actions against the operators of coal-fired utility boilers for failure to obtain the appropriate permits prior to various changes to those boilers.

<sup>17</sup> It is also noteworthy that Condition 7.5.6(a), as cited by this comment, does not contain any emission limits. It is simply a production limit.

factor that is representative of emissions during routine day-to-day operations by annual iron or steel production) does not include excess emissions that occur during startups, malfunctions and breakdowns, and thus underestimates actual emissions.

**This comment fails to identify a flaw in the approach to annual emission limits in the Draft Revised Permit. This is because this comment overlooks the fact that the permit would require US Steel to separately account for periods of time, including periods of startup, malfunction and breakdown, when the established emission factors would understate actual emissions. See, new Condition 5.13(c), as well as existing Conditions 7.1.9(h) (ii), 7.4.9(i) (ii), 7.5.9(f) (ii) and (g) and 7.6.9(c) (ii) in the Revised Permit.**

**Also noteworthy is that this comment does not propose an alternative approach to the determination of emissions for purposes of determining compliance with the subject annual emission limits.**

11. The Draft Revised Permit would require US Steel to update its emission factor(s) based on future emissions tests or future information from other sources, to assure that the procedure used to calculate annual emissions for comparison with the maximum emissions limits does not underestimate actual emissions. However, the Draft Revised Permit would not explain what happens if an updated emission factor exceeds its corresponding "emission factor limit." Would US Steel be required to install additional controls in order to reduce emissions sufficiently to come back into compliance with the "emissions factor limit?" Or would the "emission factor limit" be updated to match the new emission factor since emission factors and "emission factor limits" have the same values? Increasing the "emission factor limit" would change what is supposed to be an enforceable limit in pound/ton outside of a formal permit revision, and would necessitate an increase in the maximum emissions limit as well. This shows that the use of emission factors in the Draft Revised Permit is not actually designed to ensure compliance with emission limits, but rather to provide a calculation that demonstrates compliance, regardless of reality.

**This comment does not demonstrate that the approach to the subject emission limits is flawed. Indeed, this comment largely answers itself to show that the approach in the permit is sound. As observed by this comment, an increase in an emission factor limit can only occur through an appropriate formal permit revision. An increase in a maximum emission limit, as would almost certainly accompany an increase in an emission factor limit,<sup>18</sup> can also only occur through an appropriate formal permit revision. Accordingly, the subject emission limits are enforceable. The simple observation that emission limits can potentially be changed through an appropriate, administrative process does not show that these limits are not enforceable. It shows exactly the opposite, i.e., the limits are enforceable until and unless they are changed.**

---

<sup>18</sup> A permit proceeding to increase an emission factor limit would also need to address an increase in the associated maximum emission limit unless the increase in the emission factor limit would be accompanied by some other measure that would act to prevent an increase in permitted annual emissions.

The further question posed by this comment is what would occur if the updated emission factor for an emission unit is higher than the applicable emission factor limit, i.e., would the limit be revised or would US Steel be required to further control emissions to comply with the established limit? As an initial matter, if an "updated emission factor" for an emission unit is higher than the applicable emission factor limit, the emissions of the unit would be violating the emission factor limit.<sup>19</sup> The consequences that arise from such a violation would depend on the specific facts of the violation, including the technical nature of the violation and its circumstances. As those consequences would potentially involve formal enforcement action, possibly with involvement of the Illinois Attorney General's Office, it would not be appropriate in this document to speculate upon what those consequences would be in different circumstances.

12. The 2012 Order underscored the importance of adequate monitoring in light of environmental justice concerns pertaining to the Granite City area:

EPA acknowledges that the immediate area around the USS-GCW facility is home to a high density of low-income and minority populations and a concentration of industrial activity, and thus raises potential environmental justice concerns. Focused attention to the adequacy of monitoring and other compliance assurance provisions is warranted in this context.

2012 Order, page 6

However, the Draft Revised Permit does not increase or enhance Periodic Monitoring or provide any additional assurance that compliance with limits would be achieved. Rather, Illinois EPA sets out excuses for why additional Monitoring was not possible or warranted. Rather than address the environmental justice issue head on, Illinois EPA reframes it, arguing that it has no authority to impose additional emission controls, ignoring the USEPA mandate on adequacy of Monitoring. The issue is not whether emission limits should be added in the context of this CAAPP Permit. The issue is whether the Draft Revised Permit meets the Clean Air Act's requirement to contain Periodic Monitoring adequate to ensure compliance with emission limits. The Illinois EPA does not review the adequacy of proposed Monitoring within the environmental justice context, which it does have the authority to do, and which is required by Title V, but rather makes excuses for inadequate Periodic Monitoring in a different context. Statement of Basis at 11.

**This comment mischaracterizes the 2012 Order<sup>20</sup>. USEPA acknowledged the location of the Granite City Works in a community that poses potential concerns related to environmental justice, as noted by this comment.**

---

<sup>19</sup> Whether an increase in an emission factor limit would directly result in a violation of a maximum emission limit would depend on USS-GCW's annual production. However, unless USS-GCW was operating at a very low level of production (as occurred in 2009), it is reasonable to expect that any significant violation of an emission factor limit would also result in a violation of the associated maximum emission limit.

<sup>20</sup> In fact, USEPA found in its 2012 Order responding to the 2011 Petition that, "[t]he Petitioner has not raised any specific claim regarding environmental justice, and has not identified any distinct environmental justice-related duty or responsibility that it believes Illinois has violated." 2012 Order, page 5.

However, USEPA did not suggest that this fact, by itself, necessitated a "wholesale" review by the Illinois EPA of the provisions for Periodic Monitoring in the 2011 Permit, as indicated in this comment. Rather the Order identified specific defects in the 2011 Permit, which would be addressed by the Draft Revised Permit, as has already been discussed.<sup>21</sup>

13. The Illinois EPA incorrectly asserts that additional Periodic Monitoring is not warranted due to the "nature" of the emission units and available methodology for measuring emissions, asserting that stacks are not present at subject emission units, thus limiting the ability to monitor them. Statement of Basis at 19. This not true.

This comment inaccurately characterizes the discussion in the Statement of Basis. This is particularly true as the comment suggests that the 2011 Permit would not require stack testing to verify actual emission rates as compared to the subject emission limits for those emission units where such testing is feasible and appropriate. In fact, the 2011 Permit does require such testing.

As a general matter, with respect to the subject emission units and emission limits, the Statement of Basis makes two different points, which this comment does not directly address, much less refute. The first point is that the 2011 Permit contains requirements for Periodic Monitoring for the subject emission units that are related to the regulatory emission standards that apply to these units. These "other requirements" for Periodic Monitoring include requirements for stack testing where feasible and appropriate. These other requirements also include various requirements that serve to assure that the emissions of the subject units are properly controlled on an ongoing basis, so as to provide assurance of a consistent rate of emissions. For example, see Statement of Basis, page 20.<sup>22</sup> Accordingly, the Revised Permit does not include additional stack testing requirements to specifically address the subject emission limits as appropriate stack testing is already required related to the applicable emission standards.

The second point is much simpler. Stack testing is not feasible for a number of emission units or "points of emissions" to which subject emission limits apply.<sup>23</sup> This is because these emission units or emission points are not equipped with stacks or vents that would make such testing feasible. The existence of such emission limits, for which compliance cannot be directly verified, is an unavoidable consequence

---

<sup>21</sup> This comment selectively quotes the 2012 Order, so as to misrepresent the relevant finding by USEPA in the Order with respect to environmental justice concerns. In its entirety, the quoted passage reads, "EPA has thoroughly reviewed and evaluated the title V objections submitted by the Petitioner, discussed below. EPA acknowledges that the immediate area around the USS-GCW facility is home to a high density of low-income and minority populations and a concentration of industrial activity, and thus raises potential environmental justice concerns. Focused attention to the adequacy of monitoring and other compliance assurance provisions is warranted in this context. As explained below, where the Petitioner has demonstrated that the permit fails to assure compliance with applicable requirements, EPA is granting the petition." 2012 Order, page 6.

<sup>22</sup> Also refer to the 2011 Statement of Basis, pages 23 through 25, 64 through 68, 83 through 92, 96 through 103, and 104 through 106, and the 2011 Responsiveness Summary, Items 26 through 28.

<sup>23</sup> Most significantly, stack testing is not feasible to measure the "uncaptured emission" of the blast furnaces and the BOF furnaces, which are not captured by the control systems on these furnaces and are emitted directly to the atmosphere.

of the New Source Review Program. As a result, for these emission units, not only must compliance with the subject emission limits be determined using emission factors but those emission factors will not be source-specific emission factors that can be periodically verified through emission testing. For example, also see Statement of Basis, page 18.<sup>24</sup>

14. A large number of emission units subject to "emission factor limits" warrant additional Periodic Monitoring. The 2011 Permit does not require testing for several units with baghouses. Two other subject units emit through "vents" and could be tested using standard USEPA test methods. Any emission unit that can be controlled by a baghouse or has a stack or vent can be tested using standard USEPA test methods. The failure to require adequate Monitoring for these emission units plus other uncontrolled emission units is a serious flaw in the Permit.

This comment does not show that additional stack testing or other Periodic Monitoring should be required for USS-GCW. In particular, the 2011 Permit, as well as the Revised Permit that has now been issued, should be considered to require stack testing for all subject emission units that have control devices, as will be discussed later. Stack testing is also required, as is appropriate, for the emission unit without a control device that has discrete vents.<sup>25</sup>

Incidentally, the comment's claim that any stack or vent is amenable to emission testing using USEPA's standard methods is not correct. There are a variety of circumstances that preclude stack testing using standard USEPA test methods. These include the geometry of the vent or stack or the preceding ductwork, inconsistent exhaust gas flow rates during normal operation of the emission unit, very low or very high flow rates, and the presence of high levels of moisture.

15. The Draft Revised Permit would not require any actual Periodic Monitoring or stack testing to confirm compliance with proposed limits for two of the three emission units that emit lead, i.e., the roof monitor on the BOF Shop and desulfurization and hot metal transfer.

---

<sup>24</sup> Also refer to the 2011 Statement of Basis, pages 23 through 25.

<sup>25</sup> This comment, as submitted, claimed that there are at least 12 subject emission units vented through a stack and equipped with an emission control device for which stack testing could be conducted but, by implication, is not required by the 2011 Permit. However, the Illinois EPA could not replicate the accounting performed by the commenter.

In fact, there are 18 subject emission units. There are eight subject emission units that do not have discrete vents for which testing is not feasible. In this regard, the caster molds for continuous casting are exhausted through general building ventilation, rather than discrete vents, so that stack testing is not feasible for these operations.

Stack testing should be considered to be required for all nine of the emission units that have control devices. As will also be discussed later, for the three material handling units, one stack test would be required for one of the units as selected by the Illinois EPA shortly before testing occurs. Given the similarity of these units, which all involve material handling and are all equipped with baghouses, the results of this test would be considered representative of all three emission units.

Finally, although not equipped with control devices, the spray chambers for the continuous casters are served by discrete vents and representative stack testing is required for one of these vents, as will be discussed further later.

This comment correctly observes that the 2011 Permit would not require stack testing for the roof monitor on the BOF Shop.<sup>26</sup> This is because emission testing is not feasible for this unit or emission point, where the uncaptured emissions of the BOF furnaces enter the atmosphere. However, this comment does not even discuss the feasibility of emission testing for the BOF roof monitor. Moreover, the 2011 Permit clearly requires Periodic Monitoring for the roof monitor. In particular, the 2011 Permit requires regular opacity observations for the emissions from the BOF roof monitor. See, Condition 7.5.7(e). These opacity observations serve to directly address the effectiveness with which emissions of particulate matter, including lead, from the BOFs are being captured on an ongoing basis. The 2011 Permit also requires Periodic Monitoring to address the ongoing operation of the ESP control system, which currently controls particulate emissions of the BOF, including lead. For example, the CAAPP Permit for USS-GCW, as issued in 2011, includes Work Practice requirements for the operation of the capture system and requirements for associated operational monitoring. See, Conditions 7.5.5-3(b), 7.5.6(h) and 7.5.8(d).

Contrary to the claim made by this comment, the 2011 Permit requires stack testing for lead emissions from Hot Metal Desulfurization and Hot Metal Transfer. See, Condition 7.5.7(b)(i). Since this emission unit is controlled by the Reladle/Desulfurization Baghouse, stack testing is practicable and is required for various pollutants, including lead. Other Periodic Monitoring, in addition to stack testing, is also required as this unit is subject to various requirements pursuant to the Iron and Steel NESHAP. Notably, refer to the Work Practices for this baghouse required by 40 CFR 63.7790(b). See, Condition 7.5.5-1. Also, refer to the Monitoring and Inspection required by 40 CFR 63.7830(b). See, Condition 7.5.8(a)(iii).

16. The Draft Revised Permit would only requires stack tests every 2 ½ years for the principal source of lead, the BOF ESP. The dust on window sills in a home following spring cleaning is not a fair indication of dust levels on those window sills during the rest of the year. Stack testing is like spring cleaning as an emission unit is tuned up in preparation for testing. Thus, testing on the specified frequency does not protect the community around USS-GCW.

This comment does not show that more frequent stack testing should be required for the BOF ESP. Assuming, for purposes of discussion, that the comment's observation about stack testing is correct, the conclusion of the comment is still faulty. That is, if an emission unit is tuned up in preparation for emission testing, the proper response by a regulatory authority is not to require more frequent emission testing. The proper response is to require the unit to be maintained in a tuned-up condition, consistent with its operational condition during emissions testing. This approach works to have the environment benefit from the tuned up condition of the emission unit. This is the approach that USEPA generally takes in its NSPS and NESHAP standards. It is also the approach that has been taken in the 2011 Permit for the BOF ESP. In particular, the CAAPP Permit for USS-GCW issued in 2011

---

<sup>26</sup> A "roof monitor" is a raised section of the roof on a building, which often straddles the ridge, that has openings or windows on the long sides to admit light or to allow the escape of hot air.

requires US Steel to properly maintain and operate the ESP between stack testing. Continuous opacity monitoring is also required for the BOF ESP to verify proper operation on an ongoing basis. See, Condition 7.5.8(a) (iv).

17. The frequency of testing of the BOF ESP for lead is a particularly egregious omission. This unit is permitted to emit 2,250 pounds of lead annually. Lead is likely to be highly variable in emissions from USS-GCW as it enters the facility in scrap and iron ore, which contain highly variable amounts of lead. Thus, infrequent stack testing and information from other facilities are unlikely to protect the community. Lead can and should be continuously monitored at the significant emission units at USS-GCW, particularly as air quality in the Granite City area is currently nonattainment for lead.<sup>27</sup>

This comment does not demonstrate that more frequent testing of the BOF ESP is needed to address compliance with the subject limits for lead that apply to this emission unit. As noted by the comment, the BOF Shop is of concern for emissions of lead due to the presence of the lead in the scrap metal that is charged to the BOF Furnaces, along with molten iron from the blast furnaces.<sup>28</sup> Based on recent testing for the BOF ESP conducted in July 2012, lead emissions are less than 20 percent of the applicable limit.<sup>29</sup> The proper operation of the ESP on an ongoing basis is addressed by continuous monitoring of the opacity of the emissions of the ESP, which is an indicator of proper operation for control of particulate emissions. Technology for continuous emissions monitoring for particulate matter, much less for lead, has not been developed for application to BOF furnaces.

The Illinois EPA shares the concern expressed in this comment about current air quality for lead in the Granite City area. The Illinois EPA is currently engaged in developing Illinois' State Implementation Plan (SIP) to bring the Granite City area, along with the other lead nonattainment area in Illinois, into attainment with the new lead air quality standard. For the various sources that are responsible for the high levels of lead air quality in these areas, this plan will include additional emission standards and control requirements for their emissions to bring these areas into attainment for lead.

18. The 2009 Permit contains "emission factor limits" and maximum emissions limits for 52 different emission unit/pollutant combinations.<sup>30</sup> The Draft Revised Permit would require actual stack testing to confirm emission factors for only about one third of the emission unit and pollutant

---

<sup>27</sup> The Granite City area is currently nonattainment for lead, so that any increases in lead emissions from USS-GCW would exacerbate an existing health risk for the area.

<sup>28</sup> The blast furnaces and the handling of molten iron at USS-GCW have not been identified as being of concern for emissions of lead.

<sup>29</sup> The lead emissions of the BOF ESP measured in stack testing conducted in July 2012 were 0.0376 pounds per hour, compared to the applicable limit of 0.1934 pounds per hour. See, Attachment in the Statement of Basis for the Draft Revised Permit.

<sup>30</sup> This comment, as submitted, incorrectly indicates that there are 54 emission unit and pollutant combinations. In fact, there are only 52 such combinations. The comment incorrectly counted Deslagging & Material Handling (Baghouse #1) twice. Likely, this was because its limits for PM and PM<sub>10</sub> emissions appear twice in the 2011 Permit, once in Condition 7.1.6(b) (i) and again in Condition 7.6.6(a).

combinations (16 out of the 52).<sup>31</sup> This testing is inadequate, as it occurs infrequently, ranging from only once over the life of the facility up to, at most, every 2 ½ years. A periodic stack test only tells one about emissions after the source has tuned up its unit before the test, but nothing about emissions during routine, day-in day-out operation. This is not adequate to protect the community in which USS-GCW is located.

**This comment is not relevant to action that would be taken in the Revised Permit pursuant to the 2012 Order. In this Order, USEPA did not direct the scope of the stack testing required by the 2011 Permit to be expanded. In the 2012 Order, the USEPA addressed the specific issues posed by ABC's 2011 Petition to object to the 2011 Permit. These issues, as summarized in the 2012 Order, did not include the general scope of the stack testing required by the 2011 Permit, as now raised in this comment.**

**Incidentally, this comment also significantly understates the number of unit and pollutant combinations for which stack testing is required. The 2011 Permit requires stack testing for 30 of these combinations.**<sup>32, 33</sup>

19. In 2011, the Illinois EPA may have intended to require additional stack testing for the blast furnace that is not clearly reflected in the 2011 Permit. Condition 7.4.7(c) adds SO<sub>2</sub>, NO<sub>x</sub> and VOM to the pollutants for which stack testing is required at the casthouse and iron spout baghouses, pursuant to Condition 7.4.7(a). However, Condition 7.4.7(a) applies only to the casthouse. This creates an ambiguity that renders 7.4.7(c) unenforceable as a practical matter. It is not clear whether 7.4.7(a) applies to the iron spout. This is especially confusing as there are no NO<sub>x</sub> or VOM limits for the iron spout but Condition 7.4.7(c) requires testing of NO<sub>x</sub> and VOM at the iron spout baghouse. The Illinois EPA should revisit the relationship between Conditions 7.4.7(a) and 7.4.7(c).

**This comment is not relevant to the current permit action, as explained above. Moreover, the comment involved another mistake made by this**

---

<sup>31</sup> In the table accompanying these comments, refer to the column labeled "stack testing required." "Yes," indicating monitoring is required, only appears for 16 emission unit/pollutant combinations.

<sup>32</sup> Most significantly, the comment assumed that stack testing was not required by the 2011 Permit for subject emission limits for PM<sub>10</sub> even though the numerical values of these limits are identical to the subject limits for PM that also apply. In these circumstances, the required stack testing for PM also serves to address the subject limits for PM<sub>10</sub>. This is because emissions of filterable PM<sub>10</sub>, as are addressed by the subject limits for PM<sub>10</sub>, will never be greater than the PM emissions. This fact is specifically addressed in the asterisked note to Condition 7.5.7(b) (i).

In addition, this comment overlooked the stack testing that is required for the spray chambers on the continuous casters, which is subject to limits for PM and PM<sub>10</sub>. See, Condition 7.6.7(b).

<sup>33</sup> The 2011 Permit should also be considered to require stack testing for four more unit/pollutant combinations. This is because it provides that stack testing is required on either the track hopper baghouse, bin floor baghouse or Baghouse #1, as will be specified by the Illinois EPA shortly before testing is conducted. This should be counted as a requirement for stack testing for six combinations, whereas the comment only counted this as two stack tests. This is because the testing for the selected emission unit would also be representative of the other two units. This is discussed in response to Comment 19 in the Responsiveness Summary prepared by the Illinois EPA to accompany the issuance of the 2011 Permit.

commenter in the accounting of stack testing required by the 2011 Permit. The interplay of the conditions in the 2011 Permit addressed by this comment may not be immediately apparent, as shown by the submittal of this comment. However, upon examination, the relevant requirements of the 2011 Permit are clear. Stack testing for SO<sub>2</sub>, NO<sub>x</sub> and VOM is required both for the casthouse baghouse and for the iron spout baghouse. What is missed by the comment is that Condition 7.4.7(a) requires stack testing for both the casthouse baghouse and the iron spout baghouse pursuant to the Iron and Steel NESHAP, 40 CFR 63.7820(a). This is because both of these baghouses are particulate control devices for the casthouse. Accordingly, the Iron and Steel NESHAP requires stack testing for both baghouses. Moreover, Condition 7.4.7(a) does not actually indicate that such testing is only required for the casthouse baghouse. Condition 7.4.7(a) generally addresses stack testing that is required for the casthouse.<sup>34,35</sup>

20. The remaining emission factors would not be tested or monitored at all. This is not adequate to protect the nearby community in which USS-GCW is located and as such, does not address environmental justice.

This comment incorrectly characterizes the circumstances of the emission units for which stack testing is not feasible or appropriate. While stack testing would not occur for these units, appropriate Periodic Monitoring is appropriately required for those units as needed to address proper operation of those units. In addition, for these emission units, US Steel would be required to review the emission factors that it uses to determine compliance with the subject limits on at least an annual basis to confirm the continued appropriateness of those emission factors.

21. For the emission unit/pollutant combinations that are not tested at all, new Condition 5.13(c)(ii) would only require that emission factors be reviewed and, if necessary, updated on at least an annual basis. Stack testing would not be required at USS-GCW to confirm the factors are representative of USS-GCW.

This is correct. As already discussed, stack testing is not feasible for many of the emission units to which the subject emission limits apply. These emission limits were developed from emission factors published by USEPA in AP-42 and other documents with the understanding that it likely would never be possible to verify the actual emission rates of those emission units with stack testing. In such circumstances, it is appropriate that the continued adequacy of the emission factors that are being used to verify compliance with those emission limits be confirmed by review of the types of information that were used in the original establishment of those limits.

---

<sup>34</sup> The confusion exhibited in this comment is certainly understandable. US Steel's nomenclature for the two baghouses for the casthouse does not directly indicate that the iron spout baghouse is also a particulate control device for the casthouse.

<sup>35</sup> With regard to the iron spout baghouse, the comment correctly observes that Condition 7.4.7(c) requires stack testing for NO<sub>x</sub> and VOM, for which there are not emission limits. However, as the iron spout baghouse is subject to emission limits for SO<sub>2</sub> and stack testing for SO<sub>2</sub> is necessary, stack testing for NO<sub>x</sub> and VOM was also required. A change will not be made to the scope of the testing required by Condition 7.4.7(c) because the 2012 Order did not direct changes to the scope of required stack testing.

22. For the emission unit/pollutant combinations for which proposed new Condition 5.13(c)(ii) would require annual review, what constitutes adequate review? This ambiguity renders the condition ambiguous and hence unenforceable as a practical matter. Further, review is not a replacement for nor equivalent to Monitoring, which is required to assure compliance. This lax provision is not adequate to ensure compliance with emission limits. It also is not reasonable given the nearby high density of low income and minority populations who will be exposed to emissions that are not monitored at all.

This comment does not demonstrate that new Condition 5.13(c)(ii) would be unenforceable. This is because the comment ignores new Condition 5.13(e), which now provides a formal mechanism for the adequacy of US Steel's periodic review of emission factors pursuant to Condition 5.13(c)(ii) to be subject to oversight by the Illinois EPA, as well as USEPA. New Condition 5.13(e) would set forth a formal procedure to address potential circumstances in which US Steel should conduct further review of the particular emission factors that it is using for certain limits. It requires US Steel to conduct a further review of specific emission factors being used for particular emission unit(s) within 45 days of written notification from the Illinois EPA or USEPA that circumstances are such that further review is needed for specific emission factor(s). See, Statement of Basis, pages 25 through 26.

23. Moreover, for the maximum emission limits, unlike the provisions for the emission factors, the Draft Revised Permit would not require any future action or review.

This comment does not suggest specific further action or review that should be required by the Revised Permit relative to the maximum emission limits. Moreover, it is not apparent what such review or action would entail. This is because the Revised Permit cannot legally provide for periodic review of the subject emission limits, since these limits were established in a construction permit.<sup>36</sup>

More importantly, as already discussed, the Draft Revised Permit would require US Steel to appropriately review the current emission factors that it uses to determine compliance with the subject emission limits. As acknowledged in another comment, US Steel is using emission factors to determine compliance with the maximum emission limits, as well as the emission factor limits. Accordingly, the requirements in the Draft Revised Permit for review of emission factors would serve to address the appropriateness of emission factors relative to both emission factor limits and maximum emission limits. In other words, US Steel need not conduct separate reviews of the "working" emission factors

---

<sup>36</sup> These emission limits were originally established in Construction Permit/PSD Approval 95010001. As these limits originated in a construction permit, they are "Title I" conditions. Their authority ties back to provisions in Title I of the Clean Air Act, as well as to state provisions for construction permits. Thus, changes to the subject limits, which must necessarily be contemplated in conjunction with any review of these limits, would need to be made in accordance with relevant "Title I provisions," and not under Title V of the Clean Air Act. *Accord, In the Matter of East Kentucky Power Cooperative, Inc., Hugh L. Spurlock Generating Station, Maysville, Kentucky*, Petition Number IV-2006-04, (August 30, 2007) (acknowledging USEPA's general policy to not object to a title V permit due to concerns over BACT determinations made long ago in a separate permitting process).

**that it is using to relative to the emission factor limits and to the maximum emission limits.**

24. The 2012 Order requires the Illinois EPA to "...provide supporting documentation for the accuracy and appropriateness of those emission factors, such as historical source test data or other available information." 2012 Order at 12. The Order specifically notes that the 2011 Permit did not indicate whether "the emission factors are indicative of the emissions from USS-GCW or an explanation of why use of the emission factors is adequate to assure compliance with the emission factor and maximum annual limits." 2012 Order at 11. The repository still does not contain this critical information for most of the subject emission units.

**The repository for the Draft Revised Permit includes the information specified by the 2012 Order. In particular, for the subject emission units at the USS-GCW for which stack testing has been performed, the repository includes the reports for those tests. The repository also includes other supporting documentation for the current emission factors that US Steel is using to determine compliance with the subject emission limits. This information is summarized in the Statement of Basis that was prepared by the Illinois EPA to accompany the Draft Revised Permit. This Statement of Basis also explains why emission factors are an appropriate and necessary mechanism to determine compliance with the subject emission limits.**

25. Most of the current emission factors were calculated from AP-42 and an unsupported capture and/or control efficiency, or an emission inventory and an unsupported capture and/or control efficiency that have no nexus with USS-GCW. The material in the repository for the Draft Revised Permit contains no evidence that these emission factors and this calculation procedure yield emissions representative of USS-GCW.

**This is not correct. While most of the emission factors were originally developed from emission factors from AP-42, as generally observed by this comment, stack testing now has been conducted for many of the subject emission units for which testing is feasible. The material in the repository includes information for these stack tests. The repository also includes other information describing the basis for the emission factors that US Steel is currently using.**

26. Many of the current emission factors were calculated from published emission factors, adjusted based on capture and control efficiency. However, there is no way to determine the origins and/or accuracy of the capture and control efficiencies used in the calculations. Sources of information were not cited. No nexus with USS-GCW is identified. My calculations suggest that most of the control efficiencies were back-calculated from emission factors in pounds/ton, emission limits in tons/year, and production limits.

**For most emission units that are subject to limits, the efficiencies that were originally used in the development of emission factors are now no longer relevant. This is because stack testing is required for emission units that are equipped with control devices and this testing will verify the adequacy of current emission factors. Moreover, all recent stack tests for the subject emission units for pollutants that**

are controlled show emissions are within the subject emission limits with ample compliance margins.

The only emissions units or "emission points" for which the original capture efficiencies are relevant are uncaptured emissions from the blast furnace casthouse and uncaptured emissions at the roof monitor of the BOF shop. This is because stack testing is not feasible for these emission units. For these units, the values for these efficiencies used in the original development of emission factors continue to be reasonable values that are consistent with general engineering practice for the capture systems that are used to comply with the subject limits. Because the efficiencies of capture systems, as well as control systems, for particulate are not commonly measured, engineering data must be used for these efficiency values.<sup>37</sup> The value of capture efficiency for the blast furnace casthouse, 95 percent capture, is considered to be a conservative value for the level of capture that results from compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFFF. Based on the level of opacity routinely observed from the casthouse during tapping of a blast furnace, it is probable that the capture efficiency at the casthouse is greater than 95 percent. The capture efficiencies used for the BOF furnaces, i.e., 95 percent for charging, 99.9 percent for refining and 95 percent for tapping, are believed to be reasonable values for the current configuration of the capture systems on these furnaces and compliance with the NESHAP, 40 CFR 63 Subpart FFFFFF.

27. As described in the Attachment in the Statement of Basis, many of the emission factors in the Draft Revised Permit are based on USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42). This is not a reasonable basis for setting emission limits or assuring compliance with limits. USEPA warns that AP-42 emission factors are not suitable for setting permit limits or determining compliance. The Introduction to AP-42 explains that AP-42 emission factors "...are simply averages of all available data of acceptable quality, and are generally assumed to be representative of long-term averages for all facilities in the source category (i.e., a population average)."<sup>38</sup> The Introduction to AP-42 goes on to explain that

[e]mission factors may be appropriate to use in a number of situations such as making source-specific emission estimates for areawide inventories...Use of these factors as *source-specific permit limits* and/or as *emission regulation compliance determinations* is not recommended by EPA. Because emission factors essentially represent an average of a range of emission rates, approximately half of the subject sources will have

---

<sup>37</sup> As generally discussed in the Statement of Basis, emission standards for particulate emissions generally are set in terms of the mass of emissions from the control device. The effectiveness of emissions capture is generally addressed by standards for the opacity of uncaptured emissions or the presence of visible emissions. Compliance with standards set in these terms can be verified without need to conduct measurements for capture efficiency or control efficiency. In addition, standards that are set in these terms accommodate a source's implementation of measures that reduce the generation of particulate emissions, which would not necessarily be the case if standards were set in terms of capture efficiency or control efficiency.

<sup>38</sup> See AP-42, Introduction, p. 1, available at <http://www.epa.gov/ttn/chief/ap42/c00s00.pdf>.

emission rates greater than the emission factor and the other half will have emission rates less than the factor. (emphasis added)

Twenty-four out of 52 of the current emission factors are based on AP-42.<sup>39</sup> Thus, the Revised Permit would use emission factors to determine compliance with almost half of the "emission factor limits," even though USEPA expressly recommends in AP-42 that its emission factors not be used in this way.

**As already discussed, notwithstanding the claim made by this comment, the manner in which US Steel must use emission factors to determine compliance with the subject emission limits is fully consistent with the guidance provided by USEPA in AP-42.<sup>40</sup> For the eight emission units that are at issue for which stack testing is not feasible or practicable, the permit would properly rely on appropriate emission factors from AP-42 and other sources as the tool to quantify the emissions of those units. US Steel would have to periodically review the appropriateness of the emission factors that it is using for these units. In addition, for the ten emission units for which stack testing is feasible, including units for which emission factors were originally developed from AP-42, the appropriateness of the emission factors that US Steel is using would be subject to confirmation with stack testing on those units.**

28. Only ten of the 24 current emission factors based on AP-42 have been confirmed by stack tests. This tells us nothing about the other 14 emission factors based on AP-42, or about emissions during routine operation of the tested emission units. Further, this is not comforting even for these ten confirmed emission factors as a single stack test is not adequate to demonstrate continuous compliance, especially as the BOF furnaces use scrap metal as a feedstock, which is highly variable in composition, and at a facility which makes a range of products over time. This is a key issue for lead, for example, which enters USS-GCW in the scrap metal. As discussed in a previous comment, a stack test is not necessarily indicative of emissions on non-test days, i.e., during normal rather than the conditions during testing. Stack tests are set up for optimum operation and yield no information about routine, day-in and day-out compliance or periods of startup, malfunction and breakdown.

---

<sup>39</sup> See the table accompanying this comment, in which emission factors from AP-42 are colored in light blue.

<sup>40</sup> As observed by USEPA, in the Introduction to AP-42, "Emission factors and emission inventories have long been fundamental tools for air quality management. Emission estimates are important for developing emission control strategies, determining applicability of permitting and control programs, ascertaining the effects of sources and appropriate mitigation strategies, and a number of other related applications by an array of users, including federal, state, and local agencies, consultants, and industry. Data from source-specific emission tests or continuous emission monitors are usually preferred for estimating a source's emissions because those data provide the best representation of the tested source's emissions. However, test data from individual sources are not always available and, even then, they may not reflect the variability of actual emissions over time. Thus, emission factors are frequently the best or only method available for estimating emissions, in spite of their limitations." Introduction to AP-42, page 1.

This comment does not show that stack tests are improperly relied upon as the means to authoritatively measure the emission rate of a subject emission unit. This function or role of stack testing in this regard is well established. In addition, as already discussed in response to a previous comment, stack testing may not be sufficient, by itself, to confirm ongoing compliance.<sup>41</sup> Consideration must also be given to the operational conditions during stack testing and requirements for ongoing operational monitoring and recordkeeping for an emission unit and its emissions controls. In this regard, the use of control equipment and the margin of compliance measured during stack testing are relevant considerations for the nature of the ongoing monitoring that is appropriate for an emission unit. Based on the nature of an emission unit and its control equipment, consideration must also be given to separately accounting for periods of time, including periods of startup, malfunction and breakdown, when the emission rates measured during stack tests or established emission factors would understate actual emissions. The Illinois EPA considered these factors during the enhancement of Periodic Monitoring for the subject emission units as part of the issuance of the 2011 Permit.

29. Thirteen of the current emission factors are based on single stack tests conducted sometime between 1981 and 1993, i.e., 20 to more than 30 years ago. The Illinois EPA makes no attempt in the repository to demonstrate that a single, decades-old stack test is representative of current operations.

This comment correctly observes that the Illinois EPA has not made any attempt to demonstrate that the emission rates measured in old stack tests are representative of current operation. This is because these emission rates have been or will be verified by contemporary stack testing. As observed by the next comment, this testing may show that the results of these past tests now understate the actual emissions of pollutant(s) by a subject emission unit. This would necessitate appropriate action on the part of the Illinois EPA and US Steel to assure that the unit's actual emissions of those pollutant(s) are properly addressed.

30. The concern that dated stack tests are not representative of current emissions is heightened by a recent stack test in April 2012. That test failed to confirm an emission factor that was developed from one of the stack tests that is now over 20 year-old. The emissions measured under the most favorable conditions to USS-GCW (i.e., in a scheduled stack test) were higher than the current emission factor, showing that the established "emission factor limit" and the maximum emissions limit, in tons/year, are exceeded. US Steel's current NOx emission factor for the BOF ESP exhaust is 0.0389 pounds/ton steel, based on an August 1993 stack test, which is also the NOx "emission factor limit" for this unit. In April 2012, a stack test for the BOF ESP measured NOx emissions of 0.1273 pounds per ton of steel. Thus, depending on the level of annual production, NOx emissions could have exceeded the maximum emissions limit, 66.63 tons per year, by a factor of three.

In fact, this comment does not show that there is a deficiency in the Periodic Monitoring for the subject emission limits. Rather, it shows

---

<sup>41</sup> Indeed, elsewhere this commenter argues that more frequent stack testing should be required.

that that the CAAPP Permit for USS-GCW, as previously issued in 2011, included appropriate Monitoring for the subject limits. This is because Periodic Monitoring required by that permit has served to identify noncompliance with some of the subject emission limits.

With respect to the particular circumstances addressed by this comment, as a consequence of recent stack testing of the BOF ESP, parallel to the processing of the Revised Permit, enforcement staff at the Illinois EPA have been independently pursuing claims that NOx emissions from the ESP at the BOF are in excess of the applicable emission limits.<sup>42</sup> While the NOx emission rates measured in the stack test in April 2012, as well as a more recent stack test in July 2012, exceed the NOx emission factor as previously provided to the Illinois EPA by US Steel, US Steel has not yet formally notified the Illinois EPA of a new, updated emission factor that it will be using for the NOx emissions of the BOF ESP. This action will now need to be coordinated with the ongoing enforcement action.

31. Other emission factors for the BOF ESP are based on the single August 1993 stack test, including factors for PM, PM<sub>10</sub>, and CO. Are the current emission factors for these pollutants representative of current operations?

As will be discussed later in more detail, based on the results of recent stack tests, the current emission factors for PM/PM<sub>10</sub> and CO for the BOF ESP do not understate actual emissions. Thus, they may be considered representative of current operation for purposes of demonstrating compliance with the subject emission limits.

32. The Statement of Basis, Footnote 31, indicates that US Steel has submitted a proposed compliance schedule for NOx and VOM emissions from the BOF ESP and the Illinois EPA is processing this submittal as an application for a significant modification of the CAAPP permit, separate from this Draft Revised Permit. However, the Statement of Basis is silent on whether this modification would also address PM, PM<sub>10</sub>, and CO from the BOF ESP as well as emissions from related emission points, such as the BOF roof monitor.

As part of issuance of this Revised Permit, it is not appropriate for the Illinois EPA to publically speculate on the eventual scope of the significant modification to the Revised Permit that is anticipated at some time in the future to address US Steel's submittal of a Compliance Schedule. As observed by this comment, that modification will be a separate permit action. The full scope of the modification that is being proposed will be formally announced when the Illinois EPA releases a draft Significant Modification of the CAAPP Permit for USS-GCW for public review and comment.

33. The current VOM emission factor for the BOF ESP exhaust being used by US Steel, which is based on the AIRS Inventory, is 0.006 pounds/ton steel. This factor was not confirmed by stack testing in July 2012,

---

<sup>42</sup> On November 30, 2012, the Illinois EPA initiated the enforcement process by issuing a Violation Notice alleging violations at the BOF by US Steel. Information gathering and exchanges of information have begun in the enforcement process but are only yet in the initial stages of confirming the existence of a violation and what changes, if any, will be required to the NOx emission factor for the ESP at the BOF.

which measured 0.0153 pounds/ton steel. Thus, VOM emissions would exceed the applicable maximum emission limit, 10.74 tons/year, by about a factor of three.

The Illinois EPA agrees with this comment. As already discussed, a problem with US Steel's VOM emission factor for the BOF ESP exhaust, and compliance with the applicable limits for VOM, was revealed by stack testing required by the 2011 Permit (Condition 7.5.7(b)). In this regard, the Illinois EPA is engaged in the initial stages of enforcement, with a violation notice issued to US Steel in late 2012 for exceedance of the applicable VOM limits.

34. Besides the VOM emission factor for the BOF ESP, thirteen other current emission factors, are based on the AIRS Emission Inventory and other similar inventories.<sup>43</sup> These inventories have no nexus whatsoever with USS-GCW. The repository contains no support linking these factors to USS-GCW. Other emission factors are based on the AIRS Emission Inventory. Are they similarly flawed? The Illinois EPA has not provided evidence that any of the emission factors based on generic emission inventories are applicable to USS-GCW.

There is an adequate nexus between USS-GCW and the emission factors that originated in emission inventories for the emission factors for which such a nexus is needed. In this regard, a link to these historical inventories is not needed for emission units for which stack testing has been or will be conducted pursuant to the 2011 Permit. For these emission units, the appropriateness of the emission factors that US Steel is currently using has been and will be authoritatively confirmed by stack testing.<sup>44</sup> For other emission units, for which stack testing is not feasible, a nexus exists as USS-GCW is a steel mill and emission factors for steel mills were the basis of the emission factors. As observed by USEPA, "...emission factors are frequently the best or only method available for estimating emissions, in spite of their limitations." AP-42, Introduction, page 1. Accordingly, as emission factors continue to be the only basis to determine emissions of these emission units, a sufficient nexus exists, recognizing that information may become available in the future, which would provide "a reality check," and potentially necessitate updates to these factors.<sup>45</sup>

---

<sup>43</sup> See the table accompanying this comment. In this table, emission factors for PM and PM<sub>10</sub> are counted separately even when they are based on one factor in an inventory.

<sup>44</sup> Other than for VOM emissions of the BOF ESP, for emission factors that originated in inventories, for those emission units for which stack testing has been conducted, the appropriateness of the current emission factors being used by US Steel has been confirmed by such testing, which shows a substantial margin of compliance:

BOF ESP (Lead) - Testing in July 2012, measured emission rate approximately 20 percent of the current factor, i.e., 0.0376 compared to 0.0.1934 pounds/ton steel.

Desulfurization/Hot Metal Transfer Baghouse (Lead) - Testing in May 2012, measured emission rate approximately 15 percent of the current factor, i.e., 0.00167 compared to 0.0133 pounds/hour.

Desulfurization/Hot Metal Transfer Baghouse (VOM) - Testing in May 2012, measured emission rate approximately 20 percent of the current factor, i.e., 0.000187 compared to 0.001 pounds/ton iron.

<sup>45</sup> While the Illinois EPA can speculate on the underlying basis for some of these emission factors, as follows, the Illinois EPA is not prepared to take responsibility for supporting or reevaluating the emission factors that USEPA has developed:

Blast Furnace Charging (PM/PM<sub>10</sub>) - The factor from the AIRS Inventory was likely derived from USEPA studies of fugitive emissions from handling of bulk materials,

35. Supporting documentation is missing for the PM/PM<sub>10</sub> emission factors for the BOF additive system, the flux conveyor operations, iron pellet screening, ladle metallurgy material handling and slag pits. The material in the repository indicates that these emission factors were calculated using the following equation for particulate emissions from batch and continuous drop of bulk materials from AP-42, page 13.2.4-4:

$$EF = k (0.0032) (U/5)^{1.3} \div (M/2)^{1.4}$$

where k is the particle size multiplier, U is the mean wind speed, and M is the material moisture content. For three of these emission units, the BOF additive system, flux conveyor operations and iron pellet screening, some supporting documentation is provided for the values for the particle size multiplier, mean wind speed, and material moisture content. No documentation is provided for the ladle metallurgy material handling and the slag pits. There is also no information in the repository justifying the values of these parameters that were used to calculate the PM/PM<sub>10</sub> emission factors. AP-42 provides ranges of values for these parameters, but it is not known whether the values used in the calculations were selected from the ranges in AP-42, were determined from on-site measurements, or were derived from another source. This information is needed to verify that the values used are representative of USS-GCW and these factors were calculated correctly.

**The information that is requested by this comment is not needed for the BOF Additive System, Flux Conveyor Operations and Ladle Metallurgy Material Handling. For these units, the 2011 Permit requires stack testing, which will serve to verify whether the baghouses on these units comply with the subject emission rates. In this regard, the 2011 Permit requires stack testing for PM/PM<sub>10</sub> for one of these emission units by November 13, 2013. See, Condition 7.1.7(b). The level of uncontrolled emissions, as affected by factors such as the moisture of material, will be a consideration when the Illinois EPA decides which of these units will be tested to verify the adequacy and representativeness of the factors for these units.**

---

considering the iron ore, coke and limestone that are handled in the charging systems at the top of the blast furnaces.

**BOF Roof Monitor (Lead) - This factor was likely developed from the factors for the uncontrolled or controlled emissions from the different phases of operation of the BOF furnaces, i.e., charging, refining and tapping, using engineering assumptions for the capture efficiencies.**

**Caster Molds (NOx) - This factor from the AIRS Inventory likely represents the NOx emissions, expressed in pounds per ton of steel, from firing of natural gas to preheat components of the continuous caster prior to the introduction of molten steel.**

**Caster Molds (PM/PM<sub>10</sub>) - This factor from the EIS Inventory was likely derived from the factor for teeming (i.e., the process of pouring steel into individual molds to make ingots). The continuous casting process, with its shrouding, is much more contained than teeming, which is an older process that was replaced by continuous casting. In this regard, the PM factor for continuous casting is an order of magnitude lower than the factor for teeming, 0.006 pounds/ton compared to 0.07 pounds/ton.**

**Slab Cutoff and Slab Ripping (PM/PM<sub>10</sub>) - This factor from the EIS Inventory likely represents the emissions from the firing of natural gas, expressed in pounds per ton of steel processed, that accompanies the slab cutoff and ripping processes.**

For iron pellet screening and slag digging, which cannot be tested, upon further consideration in response to this comment, the Illinois EPA will be requiring US Steel to conduct further review to determine whether these factors should be updated. Upon closer examination of the data that US Steel provided for the origin of the factor for slag digging, the particle size multiplier used in the development of this factor, 0.35, is now recognized as being of concern. This is because the particle size multiplier for PM<sub>10</sub> was used, instead of the multiplier for PM.<sup>46</sup> (As such, US Steel's current emission factor may appropriately address emissions of PM<sub>10</sub> but not PM.) The value for material moisture content of slag, 0.92 percent, is consistent with what would be expected for slag.<sup>47</sup> The value for mean annual wind speed, 9.4 mph, is consistent with general data for the St. Louis area. Accordingly, the values for material moisture content and mean wind speed used by US Steel are likely representative of the slag digging operation at USS-GCW. For iron pellet screening, US Steel could not find the documentation for the original development of the emission factor. In addition, a concern now exists about the particle size multiplier used in developing the emission factor for pellet screening because of the multiplier used for slag digging.

36. Relevant production data is missing for the PM/PM<sub>10</sub> emission factor for the BOF ESP exhaust. The stated basis for this factor is the average of the results of testing in March 1989, July 1990, and August 1993. These results are provided in the repository but lack the associated production data necessary to convert the measured emission rates in pounds/hour to pounds/ton steel. This information is needed so these emission factors can be checked to verify that they were calculated correctly and do not understate actual emissions.

Production data, as requested by this comment, is not needed to verify the adequacy of these emission factors as they have been directly verified by the recent emission testing for the BOF ESP. The emission rates measured by stack testing in October 2009 and July 2012 were approximately 25 percent of the current factor, i.e., 0.0364 and 0.035 pounds/ton steel, respectively, as reported in the Statement of Basis, compared to a factor of 0.16 pounds/ton.

As noted by this comment, production data was not necessarily included in the reports for historical stack tests. In such cases, if such data is not otherwise available to calculate an emission factor from the test results, an engineering assumption for the production rate during the test must be made using general knowledge about the tested emission unit. Based on knowledge about how a unit is typically operated, one might use a value that represents the maximum capacity of the unit, e.g., 90 or 95 percent of the rated capacity of the unit. If a unit operates at a steady rate, it might be more appropriate to use a value for the production rate that is calculated from annual production.

In any case, production data is now required to be included in the reports for stack tests. Pursuant to Condition 8.3.6(g) of the 2009

---

<sup>46</sup> The particle size multiplier is a fixed value from AP-42, which is used to convert emission rates in terms of total suspended particulate to emission rates in terms of PM and PM<sub>10</sub>.

<sup>47</sup> The value is within the ranges for moisture content of slag provided in Table 11.2.3-1 in AP-42, Fourth Edition.

**Permit, the test reports that are submitted to the Illinois EPA must now include the operating conditions at the time of testing.**

37. Production data is also missing for the NOX and CO emission factors for the BOF ESP exhaust. The stated basis for these emission factors is an August 1993 emissions test. Without information for steel production data during the test, the NOX and CO emission factors for the BOF ESP exhaust cannot be checked to verify that they were calculated correctly and do not understate actual emissions.

**Again, the adequacy of these emission factors is directly "verified" by the recent emission testing for the BOF ESP. The CO emission rate measured by stack testing in July 2012 was approximately 40 percent of the current factor, i.e., 3.761 pounds/ton of steel compared to a factor of 8.993 pounds/ton. The NOx emission rate measured by stack testing in April 2012 exceeded the current emission factor by a factor of about three, i.e., 0.1273 pounds/ton of steel compared to a current emission factor of 0.0389 pounds/ton.<sup>48</sup> As already discussed, for NOx, the Illinois EPA has begun enforcement because the NOx emission rate from the BOF ESP measured during recent stack testing is higher than the applicable emission factor limit.**

38. Some supporting documentation is missing for the PM/PM<sub>10</sub> emission factor for the spray chambers on the continuous casters. The stated basis for this factor is a 1981 emissions test. The 1981 test was conducted when a baghouse was used to control spray chamber emissions, so the results were adjusted to remove baghouse reductions given that the baghouse was subsequently removed from the source around 1990. Neither the 1981 spray chambers baghouse exhaust stack test results, nor the associated steel production data necessary to convert the PM/PM<sub>10</sub> emission rate measured during the test from pounds/hour to pounds/ton of steel produced, nor the basis for assuming the former baghouse removed 99.3 percent of the PM and PM<sub>10</sub> are provided in the material at the repository. Without this information, the PM/PM<sub>10</sub> emission factor for the spray chambers cannot be checked to verify that it was calculated correctly and does not understate actual emissions.

**The information requested by this comment is not needed to verify the adequacy of this emission factor. The adequacy of this emission factor will be verified by stack testing that is required by the 2011 Permit. Condition 7.6.7(b) requires that testing for PM/PM<sub>10</sub> be conducted for one of the spray chambers by November 2013.<sup>49</sup>**

39. The PM/PM<sub>10</sub> emission factor for the slag pits is not supported by the material provided at the repository and may understate actual emissions. This material indicates that this emission factor was calculated from USEPA's *Assessment of Atmospheric Emissions from Quenching of Blast Furnace Slag with Blast Furnace Blowdown Water* (EPA-600/2-84-072) and AP-42. The emission factor, 0.00417 pounds of PM/PM<sub>10</sub> per ton of iron, is the sum of factors for slag quenching (0.0026 pounds/ton) and slag digging (0.00157 pounds/ton). However, the PM emission factor for slag quenching in EPA-600/2-84-072 range from 0.00419 pounds/ton iron (low

<sup>48</sup> Exceedances of the established limits for NOx were confirmed by a subsequent stack test in July 2012, which measured NOx emissions of 0.1535 pounds per ton of steel.

<sup>49</sup> The fact that stack testing is required for the spray chambers by the 2011 Permit is not indicated in the Statement of Basis. The Illinois EPA regrets this error.

temperature quenching using mill service water) to 0.041 pounds/ton iron (high temperature quenching using blast furnace blowdown water). The repository does not indicate whether USS-GCW conducts low or high temperature slag quenching and whether service water or blast furnace blowdown water, or both are used. Moreover, even under the most favorable configuration (i.e., low temperature quenching using mill service water), the PM/PM<sub>10</sub> emission factor for slag quenching, alone, is more than the emission factor limit for the slag pits.

The contribution to this emission factor from slag digging was calculated using the equation for particulate emissions from batch and continuous drop operations in AP-42, page 13.2.4-4. However, the material in the repository does not provide information regarding the particle size multiplier, mean wind speed, and material moisture content values used in the calculation or justification for the values used. Thus, it was not possible to verify that the contribution to the emission factor from slag digging was calculated correctly. If it was, then the PM/PM<sub>10</sub> emission factor for the slag pits should range from 0.00576 pound/ton (0.00419 + 0.00157) to 0.04257 pound/ton (0.041 + 0.00157). Hence the PM/PM<sub>10</sub> emission factor for the slag pits may understate emissions by as much as an order of magnitude.

**This comment does not show that there is a flaw in the quenching component of the PM/PM<sub>10</sub> emission factor for the slag pits. US Steel quenches low temperature or "hard" slag, i.e., slag that has solidified prior to quenching, using mill service water. This configuration for slag quenching is appropriately represented by the lower PM/PM<sub>10</sub> emission factor from EPA-600/2-84-072A. US Steel then adjusted this emission factor downward to account for USS-GCW's actual rate of slag generation and the accompanying decrease in the amount of water used for quenching.<sup>50</sup> This adjustment yields an emission rate for quenching of 0.0026 pounds PM/PM<sub>10</sub> per ton of iron.<sup>51</sup> The concern about the calculation for the component of the PM/PM<sub>10</sub> emission factor for the slag pits for slag digging, 0.00157 pounds per ton of iron, has already been discussed in response to an earlier comment.**

40. The SO<sub>2</sub> emission factor for the slag pits, 0.01 pounds/ton iron, is not supported by the material provided at the repository and may understate actual emissions. This material at the repository indicates that this emission factor was also calculated from EPA-600/2-84-072. The SO<sub>2</sub> emission factors for slag quenching cited in this document vary, from 0.017 to 0.043 pound/ton iron, depending on the configuration. As noted above, the material provided at the repository does not indicate the configuration for slag quenching at USS-GCW. Even under the most favorable configuration (high temperature quenching using blast furnace blowdown water), the SO<sub>2</sub> emission factor for the slag pits understates emissions by roughly a factor of two.

**This comment does not show that there is a flaw in the SO<sub>2</sub> emission factor for the slag pits. US Steel used the average emission rate reported in EPA-600/2-84-072 for the configuration of slag quenching at USS-GCW, i.e., low temperature quenching using mill service water. US**

<sup>50</sup> The annual average slag generation rate used for USS-GCW was 415 pounds per ton of iron. As indicated on page 4-7, a slag generation rate of 670 pounds per ton of iron was used in EPA-600/2-84-072 in the development of its emission factors for PM/PM<sub>10</sub>.

<sup>51</sup> 0.00419 lbs/ton x 415 pounds/670 pounds = 0.00259 lbs/ton, ≈ 0.0026 lbs/ton.

Steel then adjusted this emission rate downward to account for USS-GCW's actual rate of slag generation.<sup>52</sup>

41. The NOx emission factor for the BOF ESP exhaust is not supported by the supporting documentation provided in the repository and may understate actual emissions. This emission factor, 0.0389 pounds NOx per ton of steel, is the emission rate from the August 1993 emissions test. However, the NOx emission rates from two recent stack tests, for which the test reports are in the repository, exceed this rate.<sup>53</sup> Hence, the current NOx emission factor understates actual emissions and would need to be updated based on the results of recent emissions tests in accordance with new Condition 5.13(c)(i).

The Illinois EPA agrees with this comment. As already discussed, parallel to the processing of this Revised Permit, based on the results of recent stack tests, enforcement staff at the Illinois EPA have been independently pursuing claims that NOx emissions from the BOF ESP are in excess of the applicable emission limits i.e., 0.0389 pounds/ton steel and 69.3 tons/year. While the NOx emission rates measured in these recent stack tests, in April 2012 and July 2012, exceed the NOx emission factor previously provided by US Steel to the Illinois EPA, US Steel has not yet formally notified the Illinois EPA of a new, updated NOx emission factor that it will be using for the BOF ESP. New Conditions 5.13(c)(i) and (d)(i) in the Revised Permit now address the actual review and update of emission factors by US Steel. It specifically requires US Steel to review the emission factors that it uses to determine compliance with the subject emission limits in conjunction with stack testing and to report any updates to those emission limits to the Illinois EPA. These activities will now need to be coordinated with the ongoing enforcement action.

Incidentally, in response to this comment, the present status of the NOx emission factor for the BOF ESP has been appropriately reflected in the Revised Permit. See, the note that has been added to Attachment 3.

42. The VOM emission factor for the BOF ESP exhaust is not supported by the documentation provided at the repository and may understate actual emissions. This emission factor, 0.006 pound VOM/ton steel, is the sum of the factors listed in AIRS Emissions Inventory for Source Classification Code (SCC) 3-03-009-013 (BOF: Open Hood-Stack), 3-03-009-016 (Charging: BOF), 3-03-009-017 (Tapping: BOF), and 3-03-009-023 (Steel Furnace Slag Tapping and Dumping). However, the repository contains undated excerpts from two versions of the AIRS Emissions Inventory. The sum of the above emission factors in one excerpt is 0.006 pound/ton; in the other it is 0.009 pound/ton. Furthermore, the

---

<sup>52</sup> As reported in Table 3-4 of EPA-600/2-84-072, the average SO<sub>2</sub> content of recovered quench water for low temperature quenching using mill service water was 134.7 mg/l (average of 144.0 and 125.4 mg/l).

Similar to the approach in EPA-600/2-84-for the PM/PM<sub>10</sub> factor, US Steel developed an SO<sub>2</sub> emission factor per ton of iron produced from the measured SO<sub>2</sub> content of the quench water and information for the usage of water for quenching the slag that accompanies the production on one ton of steel, with an adjustment for the actual slag generation rate at USS-GCW.

$134.7 \text{ mg/l} \times 14.5 \text{ gal/ton iron} \times 3.785 \text{ l/gal} \div 453,600 \text{ mg/lb} = 0.0163 \text{ lbs/ton iron}$   
 $0.0167 \text{ pounds/ton iron} \times 415/670 = 0.010 \text{ lbs/ton iron}$

<sup>53</sup> The NOx emission rate measured in the April 2012 test was 0.1273 pounds/ton of steel. In the July 2012 test, the measured rate was 0.1535 pounds/ton of steel.

VOM emission rates from the BOF ESP measured in two recent stack tests exceed the VOM emission factor.<sup>54</sup> Hence, the current VOM emission factor understates actual emissions and should be updated based on the results of recent emissions tests in accordance with Condition 5.13(c)(i).

**The Illinois EPA also agrees with the conclusion of this comment. Regardless of the original basis for this factor, recent stack testing for the BOF ESP shows that the emission rate exceeds the applicable limit. As a consequence, an enforcement action has also been initiated for this exceedance. The present status of the VOM emission factor for the BOF ESP has also been appropriately reflected in the Revised Permit. See, the note that has been added to Attachment 3.**

43. The lead emission factors for the BOF ESP exhaust, the BOF roof monitor and the BOF desulfurization/hot metal transfer baghouse exhaust are not supported by the documentation provided in the repository and may understate actual emissions. The material at the repository indicates that these factors were developed from the factor in the "AIRS Emissions Inventory" for a BOF with an Open Hood-Stack, SCC 3-03-009-013), adjusted for various undocumented capture and control efficiencies. However, the repository contains undated excerpts from two versions of the AIRS Emissions Inventory. One version has a lead emission factor for SCC 3-03-009-013, 0.2 pounds/ton; the other does not contain a lead emission factor for SCC 3-03-009-013. It is not known which version is newer and therefore correct. If the former version is correct, then the lead emission factors in question are correct provided that the control efficiencies used in the calculations are applicable to the USS-GCW. If the latter version is correct, then the AIRS Emissions Inventory no longer provides an emission factor for lead and the lead emission factors for the BOF ESP exhaust, the BOF roof monitor, and the BOF desulfurization/hot metal transfer baghouse exhaust are not supported.

**The emission factors for these units were developed from the version of the AIRS Inventory that contains a lead emission factor for BOF Furnaces, SCC 3-03-009-013, which is the older version, from March 1990. These factors were not based on the newer version of this inventory, from July 2001, which does not contain a lead factor for SCC 3-03-009-013. However, the fact that the newer version does not contain an emission factor for lead under SCC 3-03-009-013 does not show that the emission factors for these units are inadequate. Rather, it merely shows that USEPA elected to not carry over the lead factor from the earlier inventory. As USEPA did not replace the earlier factor with a new factor, the earlier factor still remains applicable.<sup>55</sup> Certainly, it would not be appropriate to now suggest that there are no lead emissions from the BOF Shop, as the presence of lead emissions has been confirmed by the stack testing that has been conducted.**

---

<sup>54</sup> The VOM emission rate measured in the April 2012 emissions test was 0.023 pounds/ton steel. In the July 2012 test, the measured rate was 0.0153 pounds/ton steel.

<sup>55</sup> As explained in the introduction to the 2001 AIRS Emissions Inventory, this version of the AIRS Inventory was part of the USEPA's Emissions Inventory Improvement Project (EIIP). This project was an effort to combine all emission factors from various inventories into one source for easy reference. Emission factors from the FIRE database and the AIRS database were compiled into this EIIP database. Accordingly, it cannot be assumed that the absence of an emission factor for lead for BOF furnaces reflects a technical decision.

**As already discussed, the emission factors for the BOF ESP exhaust and the BOF desulfurization/hot metal transfer baghouse exhaust have been confirmed by recent stack testing. Thus, it is not necessary to further examine the original basis of the factors for these units.**

44. The SO<sub>2</sub>, NO<sub>x</sub> and VOM emission factors for uncaptured blast furnace emissions (0.0104, 0.0007 and 0.0047 pounds/ton, respectively) were incorrectly calculated and significantly understate actual emissions. These emission factors were developed from a July 1993 stack test assuming that the capture efficiency for the casthouse baghouse is 95 percent, with uncaptured emissions comprising the remaining 5 percent.<sup>56</sup> The repository does not provide a justification for the assumed capture efficiency of 95 percent. More importantly, the derivation of the uncaptured emission factors from the emission factors for the casthouse baghouse exhaust was not correct. The casthouse baghouse emissions represent 95 percent of the "uncontrolled emissions" (assuming the capture efficiency is correct) reduced by the control efficiency of the baghouse. Hence, before the uncaptured emissions of the blast furnace casthouse can be correctly calculated, both the capture and control efficiencies of the baghouse need to be accounted for when back-calculating the uncontrolled blast furnace emissions from the measured emissions of the casthouse baghouse. The correct formula to calculate uncontrolled emission factors for the blast furnace is as follows, with the capture and control efficiencies both expressed as percentages:

$$\text{Uncontrolled EF} = \text{Baghouse EF} \div (\text{Capture}/100) \div (100 - \text{Control})/100$$

Using a capture efficiency of 95 percent and a control efficiency of 95 percent, as used in the determination of the PM/PM<sub>10</sub> emission factor for the casthouse baghouse, this formula yields emission factors for uncaptured emissions of SO<sub>2</sub>, NO<sub>x</sub> and VOM from the blast furnace that are significantly higher than those currently being used by US Steel.<sup>57</sup>

**This comment does not show that these emission factors were improperly developed. These emission factors involve gaseous pollutants which are not controlled by the casthouse baghouse.<sup>58</sup> Accordingly, the uncontrolled emission factors for these gaseous pollutants, from which the factors**

---

<sup>56</sup> That is, uncaptured emissions = "uncontrolled emissions" × 0.05, where the uncontrolled emissions are the emissions that would theoretically occur if there were no air pollution control equipment at the casthouse.

<sup>57</sup> Using baghouse capture efficiency of 95 percent and the control efficiency of 95 percent, total blast furnace emissions are calculated as:

$$\text{SO}_2: 0.2006 \text{ lb/ton iron} \div (95/100) \div ((100 - 95)/100) = 4.2232 \text{ lb/ton iron}$$

$$\text{NO}_x: 0.0144 \text{ lb/ton iron} \div (95/100) \div ((100-95)/100) = 0.3032 \text{ lb/ton iron}$$

$$\text{VOM: } 0.0946 \text{ lb/ton iron} \div (95/100) \div ((100-95)/100) = 1.9916 \text{ lb/ton iron}$$

SO<sub>2</sub>, NO<sub>x</sub> and VOM emission factors for uncaptured blast furnace emissions are then calculated as:

$$\text{SO}_2: 4.2232 \text{ lb/ton of iron} \times 0.05 = 0.2112 \text{ lb/ton iron}$$

$$\text{NO}_x: 0.3032 \text{ lb/ton of iron} \times 0.05 = 0.0152 \text{ lb/ton iron}$$

$$\text{VOM: } 1.9916 \text{ lb/ton of iron} \times 0.05 = 0.0996 \text{ lb/ton iron}$$

<sup>58</sup> This fact is addressed in the discussion of these emission factors in the Statement of Basis for the Draft Revised Permit. For these gaseous pollutants, the "Origin of the Factor" only provides a value for the capture efficiency of the baghouse control system. This is different than the discussion for PM/PM<sub>10</sub>, which includes both a capture efficiency and a control efficiency. See, Statement of Basis, pages 41 and 42.

for uncaptured emissions were then calculated, were properly derived using the following equation:

$$\text{Uncontrolled EF} = \text{Baghouse EF} \div (\text{Capture}/100) .^{59}$$

45. The PM/PM<sub>10</sub> emission factor for the argon stir/LMF/material handling baghouse exhaust was calculated in error and understates actual emissions. The stated basis for this factor (0.00715 pounds/ton steel) is the uncontrolled emission factor for an electric arc furnace melting and refining, from Table 7.5-2 in AP-42, adjusted for an undocumented control efficiency of 99.9 percent. The uncontrolled emission factors in this table are 38.0 and 22.04 pounds/ton, respectively, for PM and PM<sub>10</sub>. Based on a control efficiency of 99.9 percent, the calculated PM and PM<sub>10</sub> emissions factors are 0.038 and 0.02204 pounds/ton steel, respectively, which are both higher than the applicable limit.<sup>60</sup>

This comment ignores the results of recent stack testing for this emission unit. This testing, in October 2009 and May 2012, shows a very large margin of compliance, with emission rates that are less than 10 percent of the applicable limit, i.e., 0.000388 and 0.000436 pounds/ton of steel compared to a rate of 0.00715 pounds/ton of steel. This testing makes the original basis of this factor irrelevant.<sup>61</sup>

While a different, lower emission factor for PM<sub>10</sub> could have been established based on the uncontrolled emission factor for PM<sub>10</sub> in AP-42, this was not the approach that was taken when Construction Permit 95010001 was originally issued setting the emission limits for this unit. The approach that was taken, with a single limit addressing both PM and PM<sub>10</sub> is more conservative. It also simplifies stack testing because separate testing for emissions of PM<sub>10</sub> need not be conducted for this unit, which could technically be challenging given the very low levels of emissions that occur from this unit.

46. The PM/PM<sub>10</sub> emission factors for caster molds, slab cutoff and slab ripping (0.006, 0.0071 and 0.00722 pounds/ton, respectively) were calculated by dividing emissions in pounds/hour by production in

---

<sup>59</sup> Incidentally, for the subject gaseous pollutants, the equation used by the commenter mathematically reduces to the correct equation when the efficiency of the control device is set at zero.

$$\begin{aligned} \text{Uncontrolled EF} &= \text{Baghouse EF} \div (\text{Capture}/100) \div (100 - \text{Control})/100 \\ &= \text{Baghouse EF} \div (\text{Capture}/100) \div (100 - 0)/100, \text{ or} \\ &= \text{Baghouse EF} \div (\text{Capture}/100) \div 100/100, \text{ or} \\ &= \text{Baghouse EF} \div (\text{Capture}/100) \div 1.0, \text{ or} \\ &= \text{Baghouse EF} \div (\text{Capture}/100) \end{aligned}$$

<sup>60</sup> 0.038 pounds/ton steel = 38 pounds/ton × (100 - 99.9)/100

$$0.02204 \text{ pounds/ton steel} = 22.04 \text{ pounds/ton} \times (100 - 99.9)/100$$

<sup>61</sup> US Steel actually indicated that a control efficiency higher than 99.9 percent was used to calculate the emission factor for the baghouse for the argon stir/LMF/material handling operation. However, in the explanation for the Origin of the Factor in the Attachment to the Statement of Basis for the Draft Revised Permit, the Illinois EPA lowered this control efficiency to 99.9 percent. This was because 99.9 percent is considered to be a more reasonable value for the control efficiency of a baghouse when applied to this type of operation.

What is apparent, based on the results of stack testing, is that the original emission limits for this emission unit were conservatively set as they were based on general emission factors for an electric arc furnace, without consideration necessarily having been given for the lower levels of emissions from an LMF (ladle metallurgy furnace), in which refining of material is not conducted.

tons/hour. Emissions and production data from Illinois EPA's 1991 EIS PM/PM10 Report, which provides both an average production rate and a maximum production rate, were used in the calculations. The emission factors were calculated using the maximum production rate (352 tons/hour). This "dilutes" emissions, so that the calculated emission factors understate actual emissions when production is below the maximum rate, which is most of the time. In order to not understate actual emissions, at a minimum, these emission factors should be calculated using the average production rate (198.8092 tons/hour), which is more representative of routine operation. Using the average production rate, these PM/PM<sub>10</sub> emission factors would be:

Caster Molds: 2.1 lb/hr/198.8092 tons/hr = 0.01506 lb/ton steel  
Slab Cutoff: 2.5 lb/hr/198.8092 tons/hr = 0.01257 lb/ton steel  
Slab Ripping: 2.54 lb/hr/198.8092 tons/hr = 0.01278 lb/ton steel

**The subject emission factors were calculated in a reasonable manner. The purpose of the 1991 EIS Report was to develop information for maximum emission rates in conjunction with the development of Illinois' attainment demonstration for the National Ambient Air Quality Standard for PM<sub>10</sub>. Accordingly, as data for maximum emission rates was generated, it was appropriate for the maximum production rate to be used when developing emission factors from this inventory. Maximum emission rates would occur at the maximum production rate. It would not have been appropriate to calculate these emission factors using an annual average production rate from the EIS Report, as was done in this comment.**

47. In the 2012 Order, USEPA directed the Illinois EPA to eliminate certain conditions in the 2011 Permit related to violation of state emission standards during startup and periods of malfunction or breakdown (SMB) in the absence of all of the documentation required by the 35 IAC 201.261 and 201.262, which rules are part of Illinois State Implementation Plan (SIP). In this regard, the Draft Revised Permit would be identical to the 2011 Permit to which USEPA objected. Instead, Illinois EPA relied on information provided by US Steel attempting to justify the need for advance permission to operate in violation of state emission standards during SMB. However, the information on which Illinois EPA relies is too vague and general to satisfy the requirements of 35 IAC 201.261 and 201.262.

**This comment mischaracterizes the 2012 Order.<sup>62</sup> While the 2012 Order found that the Illinois EPA may not grant US Steel advance permission to operate during a startup or malfunction/breakdown event lacking an application from the source that contains the information required by the Illinois SIP, the Order did not direct the Illinois EPA to eliminate conditions in the 2011 Permit that granted such permission. Rather the 2012 Order found that the Illinois EPA did not follow**

<sup>62</sup> It is noteworthy that in the 2012 Order, USEPA found that, when issuing the 2011 Permit, the Illinois EPA appropriately explained that the sole determination being made during permitting, in advance of an actual malfunction/breakdown or startup event, is whether the source in its application requested permission to make claims related to continued operation during a malfunction/breakdown or startup event. USEPA also agreed that such authorization in a permit "does not shield the Permittee from enforcement for any such violation and only constitutes a prima facie defense to such enforcement action." Finally, USEPA agreed that the relevant conditions of the 2011 Permit were consistently worded with the Illinois EPA's interpretation of Illinois' SIP. See, 2012 Order at page 24.

Illinois' SIP when it approved an application that failed to provide the specific information required by the SIP and directed the Illinois EPA to correct this error.

Consistent with the 2012 Order and as detailed further in the following responses, US Steel supplied all the information that 35 IAC 201.261 requires from a source that is requesting permission to continue to make claims related to operation of particular emission units during startup and malfunction/breakdown events in violation of certain state emission standards.

48. The 2012 Order found that US Steel's application for authorization for certain emission units to violate certain state emission standards during startup and periods of malfunction or breakdown (SMB) did not provide the information required by 35 IAC 201.261. USEPA further found that Illinois EPA therefore failed to comply with 35 IAC 201.262 in granting advance permission in the 2011 Permit for USS-GCW to operate in violation of certain state emission standards during SMB.

**This is correct. This error has now been corrected as a part of the issuance of the Revised Permit. US Steel has provided additional information addressing the informational requirements of 35 IAC 201.261.**

49. USEPA granted the Petition regarding the inadequacy of USS-GCW's application for advance permission and the inadequacy of the conditions in the 2011 Permit approving USS-GCW's application for advance permission. USEPA held that Illinois EPA may not grant advance permission to operate in excess of emission limits during SMB absent an application from USS-GCW that contains all of the information required by 35 IAC 201.261 and 201.262. USEPA Order at 24-25.

**While it is unfortunate that the 2012 Order confuses the differences in the broader factual information to be submitted by an applicant under 35 IAC 201.261 and the narrower legal criteria expressed in the standards for a grant by the Illinois EPA under 35 IAC 201.262, US Steel has provided additional information addressing the informational requirements of 35 IAC 201.261. It should be noted that the slightest inadequacy in a request for startup, breakdown or malfunction authorization does not deprive the State permitting agency of its authority to approve the request and does not invalidate any such approval reflected in a Title V permit. The Illinois EPA does not lose its authority under the Act to approve a permit notwithstanding that an application is incomplete under the Pollution Control Board's rules. *Accord., White Fence Farm, Inc., v. Land and Lakes Company, 424 N.E.2d 1370 (4th Dist. Ct. Appeals, 1981).***

50. On January 31, 2013, Illinois EPA received from US Steel supplemental information to bolster its application to operate in excess of emission limits during SMB (SMB Supplement). When Illinois EPA released the Draft Revised Permit on February 4, 2013, it necessarily relied on USS-GCW's SMB Supplement in determining that US Steel had provided all of the information required by the above-cited rules. Statement of Basis at 27-38. While US Steel provided numerous pages of paper to Illinois EPA, it failed to provide the information required by 35 IAC 201.261 and 201.262. Accordingly, Illinois EPA again lacks the legal authority to grant advance permission in the Permit for USS-GCW to operate

certain emission units in violation of certain applicable state emission standards during SMB.

As previously discussed, this comment's statement that the Illinois EPA lacks legal authority to grant advance permission in US Steel's CAAPP permit to make certain claims related to operation of certain emission units in violation of state standards during a startup or malfunction/breakdown event is flawed. Any perceived deficiencies in a submittal by a source consistent with 35 IAC 201.261 does not deprive the Illinois EPA of jurisdiction to grant authorization so long as the submittal meets the standards of 35 IAC 201.262.

Regardless, as discussed in the Statement of Basis that accompanied the Draft Revised Permit<sup>63</sup>, the Revised Permit continues to provide authorization to US Steel to make claims related to startup as US Steel affirmatively demonstrated for each emission unit that is the subject of such request that all reasonable efforts have been made and will be made to minimize startup emissions, duration of individual startups and frequency of startups. Moreover, for each emission unit at USS-GCW that is the subject of a malfunction/breakdown request<sup>64</sup>, US Steel has appropriately justified that such authorization is necessary to prevent injury to personnel and/or to prevent severe damage to equipment.

51. 35 IAC 201.261 requires an applicant to describe, among other things, the quantities of emissions that will occur during SMB events and all measures that will be taken to minimize excess emissions during SMB. USEPA has made clear that this information needs to be specific to the event:

The specific proof required in each instance usually will depend on the nature and the cause of the malfunction or breakdown. Thus, a determination that the permittee has met the requirements of 35 IAC § 201.262 to authorize continued operations during malfunction or breakdowns is a *case-by-case determination*.

2011 Order at 39 (emphasis supplied).

Unfortunately, the information in USS-GCW's SMB Supplement is general in nature; it is nothing akin to a case-by-case determination. Illinois EPA concedes this: "This information was necessarily general in nature, addressing 'typical' and worst-case malfunction or breakdown events." Statement of Basis at 31. While Illinois EPA offers some reasons why information provided in advance of an SMB event, particularly one involving a malfunction or breakdown, is difficult to predict in advance, that difficulty does not mean that USS-GCW is entitled to advance permission to exceed emission standards during SMB. To the contrary, it means that, unless USS-GCW satisfies the express requirements of the rules, it is not entitled to such advance permission.

**This comment misrepresents the statements in USEPA's 2011 Order as it implies that the requirement for a case-by-case determination extends**

---

<sup>63</sup> See, Statement of Basis, pages 32-38.

<sup>64</sup> See, Statement of Basis, pages 31-32.

to the application requirements set forth in 35 IAC 201.261.<sup>65, 66</sup> The cited provision in the 2011 Order simply states, in the context of malfunction/breakdown, that a case-by-case determination is required for such events pursuant to 35 IAC 201.262. Consistent with the Illinois SIP, the process in Illinois for addressing malfunction and breakdown, as well as startups, involves two steps. The first step, consists of seeking authorization by means of a permit application to prospectively make a claim related to malfunction/breakdown or startup.<sup>67</sup> The second step of Illinois' process for operation with excess emissions during malfunction/breakdown or startup, addresses the showing that must be made when such an event actually occurs to make a viable claim of malfunction/breakdown or startup.<sup>68</sup> Both steps involve specific determinations, with the second step providing the case-by-case determinations for particular events as addressed by USEPA in the 2011 Order.

In this instance, US Steel submitted the requisite proof that continued operation of the subject units would be necessary to prevent injury to persons or severe damage to equipment so as to entitle US Steel to make claims related to specific malfunction/breakdown events. As discussed in greater detail in the Statement of Basis and the supplemental information submitted by US Steel on January 31, 2013, many of the subject emission units involve materials that are potentially dangerous which must be handled properly to prevent injury to operational personnel. These materials would present an immediate danger to personnel if operation of the subject units were handled inconsistent with the way these units were designed to be operated during malfunction/breakdown events. In addition, US Steel explained that continued operation during malfunction and breakdown events would be needed to prevent severe damage to equipment that would result if molten metal were allowed to solidify in equipment.

Permission shall be granted to operate during a startup event upon proof that all reasonable efforts have been made to minimize startup

---

<sup>65</sup> USEPA's 2011 Order makes no reference to such a case-by-case determination in the context of application materials addressing the informational requirements of 35 IAC 201.261. In fact, USEPA's 2011 Order makes no reference to 35 IAC 201.261 in its discussion of the provisions of the 2009 Permit related to exceedances of certain state emission standards during malfunction/breakdown and startup events.

<sup>66</sup> This comment also misleadingly suggests that a statement made by the Illinois EPA in the Statement of Basis for the Draft Revised Permit with respect to malfunction and breakdown is applicable in the context of both malfunction and breakdown events and startup events.

<sup>67</sup> This first step enables conditions to be placed in permits that require source- or unit-specific recordkeeping and reporting relating to malfunction/breakdown and startup events and other requirements related to such events.

<sup>68</sup> For malfunction/breakdown, this showing consists of a demonstration that operation was necessary to prevent injury to persons or severe damage to equipment, or was required to provide essential services. There are two elements to the required showing, "need" and "function". For startup, it shall consist of a demonstration that all reasonable efforts have been made to minimize emissions from the startup event, to minimize the duration of the event, and to minimize the frequency of such events. To a certain extent, this showing may be evaluated on past practice. However, this showing is also prospective, like the showing for malfunction/breakdown, as it relates to future events, which and whose exact circumstances are not known, and which, in fact, may not routinely occur. Again, the malfunction/breakdown or startup authorization that would be provided in the Revised Permit would not shield US Steel from state emission standards that may be violated during such events.

emissions, the duration of individual startups and the frequency of startups. Here, US Steel submitted the requisite proof in its January 31, 2013 submittal and as further detailed by the Illinois EPA in the Statement of Basis for those particular units requesting start up authorization. See, Statement of Basis as it addresses the Coke Oven Batteries at pages 33-34, Blast Furnace Processes at pages 35-35, Hot Strip Mill at pages 35-37, and Boilers at pages 37-38.

52. Many of US Steel's estimates of emissions that will occur during SMB are nothing more than statements of the maximum emissions that could possibly occur. For all but one of the opacity limits (which range from 10 - 30 percent) - whether during startup or malfunction/breakdown events, and across several different processes and emission units - US Steel estimates SMB event opacity to "peak at" or "be as high as" 100 percent. For example,

During certain circumstances, opacity from the boiler stack during startup will exceed 30 percent, and it can under certain circumstances be as high as 100 percent.

SMB Supplement re Startup at Boiler Processes at 7.

Similarly, for all of the particulate matter emission standards of 0.01 gr/dscf, USS-GCW states that SMB emissions could be "0.99 gr/dscf or greater." See, e.g., SMB Supplement re Startup at Blast Furnace Processes at 4.<sup>69</sup> These estimates bear no relation to a case-by-case determination. They state worst-case, maximum emissions virtually across-the-board, without regard to the nature of the event or the type of emission unit.

**As explained in previous responses, this comment misrepresents prior statements of USEPA as this comment continues to imply that the requirement for a case-by-case determination extends to application requirements set forth in 35 IAC 201.261. USEPA has made no such assertion; nor does the specific language of this rule create such a requirement.**

**Moreover, this comment does not demonstrate that the information supplied by US Steel does not satisfy the information requirements of 35 IAC 201.261. For the subject units that US Steel requested startup or malfunction/breakdown authorization, US Steel provided the required information on the type and quantity of emissions during such events. While many of the emissions estimates quantify maximum emissions, this does not mean that the submittal fails to comport with the requirements of 35 IAC 201.261. Nothing in 35 IAC 201.261 prohibits an applicant from quantifying maximum emissions during such events. Simply because the comment suggests a different quantification should have been performed does not mean that the January 2013 submittal does not comport with applicable requirements especially when the comment does not suggest alternative quantifications.**

---

<sup>69</sup> See also SMB Supplement re Malfunction and/or Breakdown at Blast Furnace Processes at 3; and SMB Supplement re Malfunction and/or Breakdown at Ladle Metallurgy Furnace at 2.

53. US Steel's descriptions of efforts to minimize excess SMB emissions offer little case-specific information.<sup>70</sup> Rather, US Steel summarizes the types of efforts that any prudent operator should routinely take. Language identical or similar to the following appears repeatedly in the SMB Supplement:

[A]ll reasonable efforts will be taken to minimize the quantity of emissions and the duration of emissions due to startup of the batteries, including extra staffing with overtime, maintaining a spare parts inventory, and employing additional equipment such as cranes and other mobile equipment to expedite repairs.

SMB Supplement re Startup of Coke Oven Processes at 11.<sup>71</sup>

**While US Steel's description of efforts it will take to minimize excess emissions during startup or malfunction/breakdown events for each of the subject units may refer to similar measures, as acknowledged by the comment, these are measures that any prudent operator would take.<sup>72</sup> In line with the comment's acknowledgement, the proposed measures are consistent with those sorts of measures that the USEPA would expect to be employed during startups, shutdowns and malfunction events (SSM). See, Memorandum from Steven Herman, Assistant Administrator for Enforcement and Compliance Assurance to Regional Administrators, Regions I - X, State Implementation Plans (SIPs): Policy Regarding Excess Emissions During Malfunctions, Startup and Shutdown (stating an approvable SIP provision requires the defendant to demonstrate that repairs were made in an expeditious fashion; this necessarily includes the use of off-shift labor and overtime).**

54. For malfunction and breakdown, US Steel also states:

In response to malfunction and/or breakdown events, reasonable measures will be taken to prevent such events, including preventative maintenance, maintaining a spare parts inventory, and standing contracts with service providers.

SMB Supplement re Malfunction and/or Breakdown at Coke Oven Processes at 14.<sup>73</sup>

As preventative maintenance, which should be occurring in any event, is cited as a means of minimizing excess emissions during malfunction and/or breakdown events, this is illogical as preventative maintenance cannot reduce excess emissions after events have occurred.

---

<sup>70</sup> This comment again addresses startup and malfunction/breakdown events together, without recognition of the different requirements that apply under Illinois' rules.

<sup>71</sup> See also SMB Supplement re Malfunction and/or Breakdown at Coke Oven Processes at 14; SMB Supplement re Malfunction and/or Breakdown at Blast Furnace Processes at 4; SMB Supplement re Malfunction and/or Breakdown at Basic Oxygen Processes at 4; SMB Supplement re Malfunction and/or Breakdown at Ladle Metallurgy Furnace at 3; and SMB Supplement re Malfunction and Breakdown at Boiler Processes at 5.

<sup>72</sup> If the descriptions of efforts to minimize excess startup or malfunction/breakdown emissions for each of the subject units dramatically differed, the concern would be, in certain instances, that the measures proposed by US Steel were less than those of a prudent operator.

<sup>73</sup> See SMB Supplement re Malfunction and/or Breakdown at Blast Furnace Processes at 4; SMB Supplement re Malfunction and/or Breakdown at Basic Oxygen Processes at 4; and SMB Supplement re Malfunction and/or Breakdown at Ladle Metallurgy Furnace at 3.

While this comment would superficially appear correct, it is not. Upon further consideration, it is apparent that preventative maintenance acts not only to reduce the frequency of malfunction/breakdown events but also the duration and magnitude of excess emissions during such events. This is because preventative maintenance acts to reduce the scope of such events, i.e., the number of elements in an emission unit that are impacted by an event and contribute to excess emissions. In this regard, upon occurrence of an event, preventative maintenance also acts to reduce the scope of the repair work that is needed and the time until normal operation of an emission unit is resumed.

55. In some cases, virtually no information is provided regarding efforts to minimize emissions. See, SMB Supplement re Startup at Blast Furnace Processes at 7 ("maintenance and monitoring" minimize excess startup emissions). Maintenance and monitoring are similarly relied on to minimize excess emissions at hot strip mill processes and boilers.<sup>74</sup>

This comment's statement that minimal information (i.e., "maintenance and monitoring," alone, minimizes excess startup emissions) is provided concerning efforts to minimize emissions misrepresents the breadth of the information provided by US Steel to the Illinois EPA in its January 31, 2013 submittal. For the blast furnace processes, US Steel stated as follows:

All reasonable efforts are made to minimize startup emissions, the duration of startups and the frequency of startups. It is in U.S. Steel's self-interest to minimize the frequency and duration of startups, as they are costly and interrupt production. The design of the furnaces serves to minimize emissions during startups. Control equipment and control measures are fully operational during startup. Since these furnaces are MACT sources, they are equipped with monitoring equipment specifically designed to detect deficiencies in the function of these units. For the baghouses, this equipment includes leak detection, fan amperage monitoring, baghouse and differential pressure monitoring. Periodic maintenance is performed on regular schedules as required by the Iron and Steel MACT. The combination of this maintenance and monitoring as required by the MACT facilitates efforts taken to minimize emissions from the baghouses during a startup event. Startup and maintenance procedures will be followed and operations personnel shall monitor the individual instruments to minimize risk of excess emission during a blast furnace startup.

January 31, 2013, Supplement re Startup at Blast Furnace Processes, page 7.<sup>75</sup> <sup>76</sup> See also, Statement of Basis, pages 34-35.

---

<sup>74</sup> See 2013 SMB Supplement re Startup at Hot Strip Mill Processes at 4; SMB Supplement re Startup at Boilers Processes at 7-8.

<sup>75</sup> While maintenance and monitoring is also relied upon to minimize emissions during startup at the hot strip mill, additional information was provided by US Steel as well. See, January 31, 2013, Supplement re Startup at Hot Strip Mill Processes, page 4. For instance, emissions during startup of the reheat furnaces are minimized by startup procedures that facilitate good combustion during startup. In addition, the duration of startups is minimized by keeping as much heat as possible in the furnace after a shutdown. This acts to reduce the amount of fuel that must be fired during startup. In

In light of the foregoing, there is no support for this comment's statement that "virtually no information" is provided regarding efforts to minimize emissions during startup of the blast furnace process. A closer review of the submittal indicates that not only is it in the financial interest of the source to minimize the frequency and duration of these events but that control equipment and control measures are fully operational during startup as well. As a result, it is significant that monitoring equipment exists to verify that the control equipment is functioning appropriately and is all-the-while monitored by operations personnel to further minimize the risk of excess emissions during startup.

56. US Steel has not provided the information required by 35 IAC 201.261 and 201.262, and Illinois EPA should not grant advance permission for US Steel to operate in excess of emission limits during SMB events. Illinois EPA should remove the SMB provisions from the Draft Revised Permit before issuing it in final form.

As previously discussed, the information submitted by US Steel meets the requirements of Illinois' SIP. Accordingly, for the emission units that are the subject of US Steel's requests, the Revised Permit would continue to authorize US Steel to make claims related to malfunction/breakdown or startup events. It would not be appropriate for the Illinois EPA in the Revised Permit to make the change requested by this comment.

57. In November 2012, Illinois EPA issued a Violation Notice to US Steel alleging violations for the NOx and VOM limits for the BOF furnaces and ESP) in Condition 7.5.6(c) of the 2011 Permit. By means of a letter dated January 30, 2013, US Steel submitted a compliance plan/schedule requesting that it be incorporated into the CAAPP Permit. While Illinois EPA acknowledges receipt of the compliance plan/schedule in the Statement of Basis, Illinois EPA has made the "preliminary decision to wait until the enforcement cases . . . have been resolved and/or adjudicated before including any compliance schedule in a CAAPP permit for the facility." Statement of Basis at 14-15. Although Illinois EPA has made the preliminary decision not to include US Steel's proposed compliance schedule in the planned Revised CAAPP Permit, the Act and the regulations promulgated thereunder require that such a compliance schedule be included in the Revised CAAPP Permit when it is reissued. Section 39.5(7)(p)(iii) of the Act states that each CAAPP permit shall include a "schedule of compliance consistent with subsection 5 of this Section and applicable regulations." 415 ILCS 5/39.5(7)(p)(iii); see also 415 ILCS 5/39.5(7)(p)(iv) (stating that each CAAPP permit shall include "[p]rogress reports consistent with an applicable schedule of compliance . . .").

---

addition, startup is overseen by operating personnel, who make adjustments to maintain proper combustion during startup. See also, Statement of Basis, pages 35-37.

<sup>76</sup> Similar information was provided by US Steel concerning efforts to minimize emissions at the boilers. See, January 31, 2013, Supplement re Startup at Boilers Processes, pages 7-8. While maintenance and monitoring is also relied upon to minimize emissions during startup, it is in US Steel's financial interest to minimize both the frequency and duration of startups as they are costly and interrupt production. Emissions during startup of the boilers are minimized by startup procedures that facilitate good combustion during startup. Startup is overseen by operating personnel, who make adjustments to maintain proper combustion during startup. See also, Statement of Basis, pages 37-38.

The relevant provisions of the Act and accompanying regulations do not require the Illinois EPA to include the compliance schedule proposed by US Steel in the Revised Permit. This is because the Illinois EPA is acting pursuant to Sections 39.5(9)(e)-(g) of the Act rather than Section 39.5(7)(p)(iii) of the Act, as cited by this comment. Section 39.5(7)(p)(iii) of the Act provides, in relevant part, that "[e]ach CAAPP permit issued under subsection 10 of this Section shall contain the following elements with respect to compliance . . . [a] schedule of compliance consistent with subsection 5 of this Section and applicable regulations." 415 ILCS 5/39.5(7)(p)(iii). As Section 39.5(7)(p)(iii) of the Act refers to Section 39.5(10) of the Act, it describes those circumstances under which the Illinois EPA shall generally issue a new CAAPP permit, permit modification, or permit renewal; Section 39.5(10) of the Act is not applicable to the present permitting action, where the Illinois EPA is merely responding to a USEPA order consistent with Section 39.5(9) of the Act.

The scope of the present permit proceeding is narrow. As set forth in the CAAPP, if a petition objecting to a CAAPP permit is granted by USEPA after the permit has already been issued, the Illinois EPA is authorized to revise the CAAPP permit in response to USEPA's order. See generally, Sections 39.5(9)(e)-(g) of the Act. These provisions do not require a source to submit an appropriate, complete application, as would be required under Section 39.5(5)(d) of the Act for the Illinois EPA to issue a new or revised CAAPP permit in circumstances where the Illinois EPA is not responding to a USEPA order. Indeed, Section 39.5(9)(g) of the Act specifically provides that a source will not be in violation of the requirement to have submitted a timely and complete application when the Illinois EPA is acting in response to an objection from USEPA.

58. Section 39.5(7)(p)(iv) of the Act provides that each CAAPP permit shall contain "[p]rogress reports consistent with an applicable schedule of compliance pursuant to paragraph (d) of subsection 5 of this Section." Section 39.5(7)(p)(iv) further details the required contents for any such progress reports. 415 ILCS 5/39.5(7)(p)(iv); see also 40 CFR 70.6(c)(3) - (4) (stating that "[a]ll part 70 permits shall contain the following elements with respect to compliance . . . [a] schedule of compliance . . . " and progress reports consistent with an applicable schedule of compliance). For such non-compliant emission units, the regulations further require the following:

...a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any such applicable requirements for which the source will be in noncompliance at the time of application submittal. This compliance plan/schedule of compliance addendum shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject

35 IAC 270.404(b).

The Illinois EPA's action is consistent with the CAAPP, Illinois's approved Title V permit program. As already discussed in response to a prior comment, Section 39.5(7)(p) of the Act pertains to CAAPP permits

issued under Section 39.5(10) of the Act and is not applicable to permits issued by the Illinois EPA pursuant to Section 39.5(9) of the Act in response to a USEPA order. See generally, Sections 39.5(9)(e)-(g) of the Act. These provisions do not require a source to submit an appropriate, complete application as would generally be required under Section 39.5(5)(d) of the Act when the Illinois EPA is issuing a new or revised CAAPP permit. Not surprising, the requirements of Sections 39.5(9)(e)-(g) of the Act are consistent with the relevant requirements found in 40 CFR 70.8(d) related to the content of state Title V programs, specifically that part of a state program addressing petitions to object filed before the USEPA.<sup>77</sup> See, 40 CFR 70.8(d) ("In any case, the source will not be in violation of the requirement to have submitted a timely and complete application.")

While the comment also cites 35 IAC 270.404 for additional support, this rule does little more than codify and elaborate upon the content requirements for CAAPP applications submitted consistent with Section 39.5(5) of the Act. 35 IAC 270.404 begins by stating that "[a] CAAPP application shall contain a compliance plan/schedule of compliance for all emission units at the source, regardless of the compliance status of each emission unit, that contains the following..." Again, given Section 39.5(9)(g) of the Act explicitly provides that a source will not be in violation of the requirement to have submitted a timely and complete application when the Illinois EPA is responding to a USEPA objection, it matters little what the content requirements for a CAAPP application typically are under Section 39.5(5) of the Act when the Illinois EPA is not responding to a USEPA objection.

59. Based on statutory and regulatory provisions discussed in prior comments, CAAPP permits are required to include compliance schedules for emission units that are not in compliance with applicable requirements of the permit at the time of issuance. Illinois EPA stated that it is too soon to determine non-compliance based on the issuance of the violation notice to US Steel because the enforcement process is only in the beginning stages. Illinois EPA also noted that other considerations and information need to be taken into account prior to revising the CAAPP permit to include a compliance schedule. However, US Steel's January 30, 2013 letter requesting a compliance schedule be included in the Revised Permit clearly explained that the results of the last two stack tests demonstrated "that the BOF ESP cannot maintain compliance with the current emission limits for NOx and VOM." Thus, US Steel concluded, based on these stack tests, that USS-GCW cannot comply with certain requirements in the CAAPP Permit for USS-GCW. Accordingly, US Steel requested the inclusion of a compliance schedule in the Revised Permit. The Illinois EPA should reconsider its position on this matter and include the requested compliance schedule in the Revised Permit, as a new Condition 7.5.13.<sup>78</sup>

---

<sup>77</sup> The federal rules cited by this comment, 40 CFR 70.6, generally deal with the required contents of an initial CAAPP permit or a CAAPP permit renewal rather than a revised CAAPP permit issued in response to a USEPA action on a petition to object.

<sup>78</sup> The Illinois should also add a cross-reference to this compliance schedule in the Revised Permit, by adding a note (\*) after existing Condition 7.5.6(c) as follows: "\*These limits have been addressed by the compliance schedule established for compliance with these factors and limits. (See Condition 7.5.13)."

As already discussed in response to other comments, the Illinois EPA is not required to include the compliance schedule proposed by US Steel in the Revised Permit because it was not considered by USEPA in its action on a petition to object. The scope of the present proceeding is quite narrow. See, Sections 39.5(9)(e)-(g) of the Act. The scope is not the same as that for a routine CAAPP permitting transaction, *i.e.*, the issuance of an initial CAAPP permit or the renewal of a CAAPP permit. The Illinois EPA is merely responding to USEPA's action on a petition to object.<sup>79</sup> Accordingly, this proceeding does not provide an appropriate forum to include a compliance schedule in the Revised Permit for USS-GCW, much less the proposed compliance schedule submitted by US Steel.<sup>80</sup>

---

<sup>79</sup> As already explained, the Illinois EPA is initiating the processing of US Steel's recently submitted compliance schedule in accordance with Section 39.5(14)(c) of the Act, as an application for a significant modification to the CAAPP permit for USS-GCW. That permitting action would potentially involve finalizing a compliance schedule that would address violations of certain emission limits by the BOF. As provided by the Act, the procedures of the CAAPP for significant modification must be followed for "applications requesting significant modifications and for those applications that do not qualify as either minor modifications or as administrative permit amendments." A modification of a CAAPP permit to include a compliance schedule would commonly be considered "significant." See, Section 39.5(14)(c)(i) and (ii) of the Act. As a significant modification, that permit action would be subject to public participation, with at least a 45-day public comment period, followed by review by USEPA, in accordance with Sections 39.5(8)(a) and (9) of the Act, rather than a limited 10-day public comment period, as provided for by Section 39.5(9)(g) of the Act.

<sup>80</sup> As discussed in the Statement of Basis, the issuance of a violation notice (VN) is not sufficient to satisfy the demonstration required under Section 505(b)(2) of the Clean Air Act for the inclusion of a compliance schedule in a Title V permit. The non-compliance alleged in a violation notice is simply an early stage in the larger enforcement process of determining whether a violation has occurred and the precise nature of such violation. At this stage in an enforcement action, without further investigation by appropriate enforcement staff, information is generally insufficient to warrant a compliance schedule.

In this particular case, US Steel initially responded to the Illinois EPA's violation notice on January 8, 2013. This response requested a meeting with the Illinois EPA and indicated that US Steel would be submitting additional information in rebuttal of the alleged violations. The requested meeting only recently took place, on February 6, 2013 and US Steel's formal response to the Illinois EPA was just submitted on February 27, 2013. While responding specifically to the violations alleged in the violation notice, US Steel neither admitted or denied the violations and reserved its right "to make arguments, as necessary, in defense of any and all allegations that may be raised by the Illinois EPA and/or the Illinois Attorney General related to this VN."

Meanwhile in the permitting context, on January 30, 2013 US Steel submitted a proposed compliance schedule related to this matter and requested that this compliance schedule be included in this Revised Permit. A prerequisite for inclusion of the proposed compliance schedule in the Revised Permit is that the Illinois EPA determine that the remedy proposed by US Steel and the timing of this remedy are appropriate. This is not discernable at this early stage of this enforcement action. In addition, as already discussed, the Illinois EPA's finding in this regard would need to be subject to public comment and review by USEPA consistent with the general procedures for CAAPP permitting under Sections 39.5(8)(a) and (9) of the Act before any compliance schedule in this matter could actually be included in the CAAPP permit for USS-GCW.

Accordingly, it is appropriate to wait until this enforcement case has further evolved before including any compliance schedule concerning this matter in a CAAPP permit for USS-GCW. It certainly not appropriate to include the compliance schedule proposed by US Steel in the Revised Permit that has now been issued.

**FOR ADDITIONAL INFORMATION**

Questions about this permitting decision should be directed to:

Bradley Frost, Community Relations Coordinator  
Illinois Environmental Protection Agency  
Office of Community Relations  
1021 North Grand Avenue, East  
P.O. Box 19506  
Springfield, Illinois 62794-9506

217-782-7027 Desk line  
217-782-9143 TDD  
217-524-5023 Facsimile

[brad.frost@illinois.gov](mailto:brad.frost@illinois.gov)

**SUMMARY OF SIGNIFICANT CHANGES BETWEEN  
THE DRAFT AND THE ISSUED REVISED PERMITS**

Condition 5.13

The initial discussion in new Condition 5.13, the General Procedures for Certain Permit Limits on Emissions, now explicitly indicates that the "emission factors" contained in the subject conditions are emission limits. This change has been made because of the continuing confusion displayed in comments about whether the emission factors in those conditions were limits or fixed values of emissions that US Steel could use to address compliance with the limits in the subject conditions for annual emissions. This change is consistent with the 2012 Order as it stated that the Illinois EPA should consider clarifying in the Revised Permit that the emission factors in the subject conditions are, in fact, emission limits. See, 2012 Order, pages 8-9.

The introductory paragraph of new Condition 5.13 now reads that "[p]ursuant to Sections 39.5(7)(b) and (p)(v) of the Act, these procedures are applicable for the emission limits in Conditions 7.1.6(b)(i) through (iv), 7.4.6(b) through (f), 7.5.6(c) through (g) and 7.6.6(a) through (e), which address the rates of emissions or 'emission factors' (commonly in pounds/ton) and the annual emissions or 'maximum emissions' (in tons/year) of certain emission units, as the Permittee determines compliance with these limits with 'emission factors,' using the common meaning of this term. In particular, notwithstanding the fact that the above listed conditions set 'emission factor limits' or limits on the rates of emissions, for purposes of this condition, an 'emission factor' is a set value for the mass of a pollutant emitted by a particular emission unit relative to the amount of material that is processed or handled by the unit, or in the case of lead, a set value for the mass of lead emissions for each hour that the particular unit operates, which value is used in the determination of the emissions of the unit."

In addition, in Condition 5.13, the term "actual" is no longer used to describe emissions as represented or determined by emission factors. This is because these emissions may overstate the real or actual emissions. This change has been made in response to various comments. These comments highlighted the fact that the emissions of emission units as would conservatively be determined in compliance demonstrations using emission factors in accordance with the provisions of the permit would be equal to or, more likely, higher than the actual emissions of the units.

Note in Condition 5.13 and Introduction to Attachment 3

Changes have been made to the language in the note in new Condition 5.13 and related language in the introduction to Attachment 3, which lists the current emission factors being used by US Steel for the subject units as of the date of issuance of this Revised Permit. The changes clarify that the specific emission factors listed in Attachment 3 are based on information as provided by US Steel. This change was made in response to comments on the Draft Revised Permit that improperly suggested that the emission factors listed in Attachment 3 are factors that have been approved by the Illinois EPA rather than simply a listing of the emission factors that US Steel has indicated that it is currently using to demonstrate compliance with the subject emission limits.

Attachment 3

Notes have been added for the current emission factors used by US Steel for NOx and VOM emissions from the ESP at the BOF so that the Revised Permit accurately reflects the present status of the process to update these emission factors. In particular, parallel to the processing of the Revised Permit, the Illinois EPA has been independently pursuing claims that NOx and VOM emissions from the ESP at the BOF during two recent stack tests were in excess of applicable emission limits. While the NOx and VOM emission rates measured in the April 2012 and the July 2012 stack tests exceed the emission factors as previously provided by US Steel to the Illinois EPA, US Steel has not yet formally notified the Illinois EPA of a new, updated emission factor that it will be using for NOx and VOM emissions of the BOF ESP.