

Illinois Environmental Protection Agency
Bureau of Air, Permit Section
Springfield, Illinois

April 2013

Responsiveness Summary For
Public Questions and Comments on the
Proposed Issuance of a Construction Permit with Integrated Processing for an
Emission Reduction Project for the
Existing Basic Oxygen Process Furnaces at
United States Steel Corporation's Granite City Works
Granite City, Illinois

Source Identification No.: 119813AAI
Construction Permit No.: 11050006
CAAPP Permit No.: 96030056

DECISION

On April 1, 2013, the Illinois Environmental Protection Agency (Illinois EPA) issued Construction Permit 11050056 to United States Steel Corporation, Granite City Works (US Steel) for a planned emission reduction project for the two basic oxygen furnaces (BOFs) at this steel mill. The Illinois EPA processed the permit application for this project using "Integrated Processing." Accordingly, the construction permit issued for this project also authorizes certain related changes to be made to the Clean Air Act Permit Program (CAAPP) permit for the Granite City Works by administrative amendment.

The construction permit that has now been issued, compared to the draft permit prepared by the Illinois EPA, includes a number of changes that were made in response to comments that were received. It also includes a number of other improvements that resulted from the Illinois EPA's further evaluations concerning this planned emission reduction project.

BACKGROUND

The Illinois EPA Bureau of Air evaluates applications and issues permits for sources of emissions. Applications for air pollution control permits must appropriately address compliance with applicable air pollution control laws and regulations before a permit can be issued.

US Steel applied for an air pollution control construction permit for an emission reduction project that will involve the installation of a new control system with a filter or "baghouse" for the two BOFs at its Granite City Works. The new system will control secondary particulate emissions from the BOFs, i.e., the particulate emissions from charging and tapping of the BOFs. The particulate emissions from the refining process in the BOFs will continue to be controlled by the existing electrostatic precipitator (ESP). The new baghouse control system will improve overall control of the particulate emissions of the BOFs. US Steel has agreed to install this new baghouse control system to reduce particulate emissions of the BOFs pursuant to a Memorandum of Understanding between US Steel and the Illinois EPA (Agreement).¹

US Steel requested that the Illinois EPA process the construction permit application for the new baghouse control system using "Integrated Processing," following procedural requirements that are substantially equivalent to those that apply to CAAPP permits.² (The CAAPP is Illinois' operating permit program pursuant to Title V of the federal Clean Air Act for major sources of emissions and certain other stationary sources of emissions.) With integrated processing, a construction permit may also authorize certain related changes to be made to the CAAPP permit for a source by administrative amendment. US Steel requested integrated processing of the construction permit application for the new baghouse system because the CAAPP permit for the Granite City Works, Permit 96030056, contains certain requirements that will no longer be appropriate when the particulate emissions of the BOFs are controlled by the combination of the new control system and the existing ESP system.³ US Steel made this request in

¹ United States Steel Corporation Granite City Works and IEPA: Memorandum of Understanding, effective July 1, 2010, when signed by Douglas Scott, Director of the Illinois EPA.

² Illinois' CAAPP program provides for integrated processing in Section 39.5(13)(c)(v) of the Environmental Protection Act and 35 IAC 270.302(e).

³ For example, the current CAAPP permit contains limits for the minimum air flows to the ESP during charging and tapping that would no longer be relevant when these emissions are controlled with the new baghouse system.

order to have certainty about the requirements that will apply to the BOFs with the new baghouse system. This would be provided with integrated processing because the construction permit for this new system would also set out the related revisions to the CAAPP permit that would be made to address this system and provide for these revisions to occur by administrative amendment of the CAAPP permit. The Illinois EPA has now processed the construction permit application for the new baghouse system using integrated processing.⁴

By a separate application, US Steel also requested that a previous construction permit issued for the Granite City Works, Construction Permit/PSD Approval 95010001, be revised to remove conditions that would no longer be appropriate when the new baghouse control system begins operation. Permit 95010001 was originally issued on January 25, 1996 for a project involving increases in the production of iron and steel by the source. The changes requested to Permit 95010001 would provide further certainty about the requirements that would apply to the BOFs with the new baghouse control system. The Illinois EPA has already acted on US Steel's request to revise Permit 95010001. The revised permit was issued on December 17, 2012. The public comment period that preceded that action was combined with the public comment period on the draft of the construction permit for the planned baghouse system, which is discussed below.⁵

PUBLIC PARTICIPATION AND USEPA REVIEW

Following its initial review of US Steel's application for a construction permit for the baghouse control system, the Illinois EPA Bureau of Air made a preliminary determination that the application met the standards for issuance of a permit. The Illinois EPA prepared a draft of the construction permit that it proposed to issue for public review and comment. The findings and conditions for the construction permit were included in "Part 1" of the draft permit. The specific changes that would be authorized to be made to the CAAPP permit for the Granite City Works were included in Part 2 of the draft permit.

The public comment period on the draft construction permit began with the publication of a notice in the Granite City Press Record on May 30, 2012. The notice ran again in the Granite City Press Record on June 6th and 13th, 2012. A public hearing was held on July 18, 2012 at the Granite City Township Hall to receive oral comments and answer questions regarding the construction permit application and draft construction permit for the new baghouse control system. The comment period closed on August 17, 2012.

Following the close of the comment period, the Illinois EPA reviewed the oral comments that were made at the public hearing and the written comments that were submitted. A "proposed construction permit" was then prepared, which contained certain changes from the draft permit that the Illinois EPA made in response to the comments that were received.

⁴ The Illinois EPA previously issued a construction permit for this emission reduction project on August 31, 2011 without using integrated processing. US Steel appealed that permit, filing a Petition for Review with the Pollution Control Board on October 10, 2011. A key element in US Steel's appeal was that the Illinois EPA had not used integrated processing prior to issuing that construction permit.

⁵ When the revision of Permit 95010001 was issued on December 17, 2012, the Illinois EPA released a separate Responsiveness Summary to accompany that action. That Responsiveness Summary addressed comments and questions received during the public comment period regarding US Steel's request for revision to Permit 95010001 and the draft of the revision of that permit prepared by the Illinois EPA.

Following procedural requirements for the processing of CAAPP permits, this proposed construction permit was then submitted to USEPA for its review on February 7, 2013. USEPA did not object to the issuance of the proposed construction permit. The Illinois EPA has now issued a construction permit that is identical to the proposed permit submitted to USEPA. The Illinois EPA has also prepared this Responsiveness Summary, to accompany the issuance of this permit, to respond to comments and question that were received during the public comment period on the draft permit.

AVAILABILITY OF DOCUMENTS

The construction permit issued by the Illinois EPA and this responsiveness summary are available by internet, <http://www.epa.state.il.us/public-notice/>. This information may also be available on the internet database that USEPA Region 5 maintains for certain air pollution control permits issued in Illinois, Illinois Permit Database, available at <http://www.epa.gov/reg5oair/permits/ilonline.html>. Copies of these documents may also be obtained by contacting the Illinois EPA at the telephone numbers listed at the end of this responsiveness summary.

QUESTIONS AND COMMENTS WITH RESPONSES BY THE AGENCY

1. The new baghouse would control emissions from tapping and charging of the basic oxygen furnaces (BOFs), but emissions from refining would continue to be controlled by the existing electrostatic precipitator (ESP). Is there a reason that the baghouse could not also control refining?

The new baghouse system is not designed to control the refining or "primary emissions" of the BOFs because that is not the main target of the Agreement. The bulk of the improvement in control of particulate emissions that is sought is for the secondary emissions of the BOFs, i.e., emissions from charging and tapping of the BOFs. This is where the current control system on the BOFs may be greatly improved to obtain significant benefits for ambient air quality.

Moreover, baghouses commonly are not considered suitable for control of the primary emissions of a BOF. If one attempted to use a baghouse to control these emissions, the high moisture level in the flue gas entering the baghouse would quickly blind the filter material, interfering with proper operation of the baghouse. The high moisture level is a consequence of the water sprays that are used to cool the flue gas before it enters the baghouse or other control device. This cooling is needed to both protect the control device from damage and, as the volume of flue gas is reduced by cooling, to facilitate effective control of emissions. Accordingly, the primary emissions of BOFs are controlled with ESPs or scrubbers.⁶ In this case, primary emissions would continue to be controlled by the existing ESP. The performance of the existing ESP should be expected to improve significantly when it is no longer being relied upon for control of secondary emissions and can be operated for control of only primary emissions.⁷

⁶ For example, the particulate emissions of the other BOFs in Illinois, at Mittal Steel, in Riverdale, in the Chicago area, are controlled by the combination of an ESP system for primary emissions and a baghouse system for secondary emissions.

⁷ Accordingly, the Agreement appropriately provided for a new baghouse system for control of emissions from charging and tapping. The Agreement also sets a more stringent limit for the ESP,

2. While I am grateful that a baghouse system will be installed on the BOFs, could the system be better? It has taken many years to get to this point. As long as US Steel is installing a baghouse system for the BOFs, why not install the most protective one available, with the greatest emission reduction that can be made. It will be better for public health and perhaps the area can truly meet the National Ambient Air Quality Standards (NAAQS) for particulate matter.

The Illinois EPA appreciates this sentiment. However, the planned project for the BOFs is appropriate. Secondary emissions from the BOFs will be controlled by a baghouse control system that is specifically designed for effective capture and control of secondary emissions, with greater capacity than the current hooding. This system will be connected to a large baghouse designed for control of secondary emissions, rather than being served by an ESP that must also control the primary emissions of the BOFs.

3. The baghouse at Gateway Energy, the new coke plant in Granite City, is required to remove 99.99 percent of the PM_{2.5} emission. The baghouse proposed to be used for the BOP furnaces would only have 97 percent removal. Why won't the new baghouse for the BOFs be as good as the baghouse at Gateway Energy?

The main baghouse at Gateway Energy and the new baghouse planned for the BOFs at the Granite City Works should not be directly compared in the way that they have been in this comment. In fact, the proposed baghouse at US Steel would be subject to the same performance requirement for as the main baghouse at the existing Gateway Energy plant, i.e., a limit of 0.005 gr/scf for filterable particulate matter in the exhaust from the baghouse.⁸

The cited efficiency values for these baghouses actually address different aspects of the performance of these two control systems. As such, they do not provide a direct comparison of the two baghouses and do not indicate that the new baghouse for the BOFs would not be as "good" as the baghouse at Gateway Energy. For the Gateway baghouse, the efficiency value is actually a specification for the removal capability of the filter fabric, not the overall control efficiency of the baghouse. In contrast, the cited efficiency value for the new control system for the BOFs actually addresses the design control efficiency of the new baghouse for secondary emissions from the existing BOFs at the Granite City Works. As such, it considers the actual nature and loading of particulate matter in the stream that would be entering the baghouse. For baghouses, these are critical factors for the numerical value of control efficiency that is achieved by a baghouse when it is used in a particular application. Accordingly, the performance of filter-type control devices is more appropriately addressed, from a technical perspective, in terms of the outlet dust loading that is achievable or required. On this basis, the requirements for these two baghouses are identical.

0.01 gr/scf, compared to 0.02 gr/scf. However, it did not provide for a new control system to be installed for refining emissions of the BOFs, replacing the existing ESP.

⁸ Refer to Condition 4.1.5(a) of Construction Permit/PSD Approval 06070020.

4. USEPA has certified numerous filters for 99.99 percent removal efficiency for PM_{2.5}. According to the construction permit application, the proposed baghouse for the BOFs will have 97 percent removal efficiency for PM.

The Illinois EPA is not aware of any "filters," i.e., baghouses, that USEPA has certified for their removal efficiency. USEPA has certified various filtration materials for achievement of 99.99 percent removal for PM_{2.5}. These certifications are based on evaluations of samples of those materials made in a laboratory using a standardized analytical methodology. This methodology involves introducing a stream of particulate matter of uniform size at a constant rate to the sample of filter material that is being tested. As such, USEPA's certifications for filtration materials do not reflect the performance of the filtration fabrics in actual applications, much less the performance of entire baghouse systems. Accordingly, this comment does not provide meaningful data against which to compare the new baghouse control system for the BOFs.

Incidentally, it is expected that, in practice, the overall performance of the new baghouse will be better than 97 percent, which is a design specification for this device that was provided in the application.

5. Is this the best baghouse and filter available? Comparing the proposed baghouse to other baghouse units, will this be the best baghouse available? Are the full capabilities of the baghouse going to be used? Could the baghouse achieve a higher efficiency?

Since the new control system is an emission reduction project, a case-by-case review of the performance or the efficiency of the baghouse is not required by applicable rules. However, as reflected in the construction permit, the new baghouse control system must meet emission limits for particulate matter established by USEPA as Maximum Achievable Control Technology, under the Iron and Steel NESHAP, 40 CFR 63 Subpart FFFFF. As such, a modern baghouse is required.

6. If there is a baghouse control system or filter that would be more protective, that is what I want. I am thrilled about this project but I think of its cost. USEPA is going to set revised NAAQS for PM_{2.5} and ambient air quality in Granite City is not going to meet them. It seems like this is the appropriate time to just get it done. Otherwise, it might not happen for a long time.

The Illinois EPA appreciates the desire to have the most efficient and protective baghouse control system for the BOFs. However, the planned project for the BOFs is a reasonable project that US Steel has committed to implement for control of secondary emissions. A modern capture system connected to a large baghouse will be installed, taking the place of the existing ESP for control of secondary emissions.⁹

7. The draft construction permit for the new baghouse control system would limit its emissions of particulate as particulate matter (PM) but not as PM₁₀ or PM_{2.5}. For PM₁₀ and PM_{2.5}, the permit would only require emissions testing followed by submission of a onetime report evaluating PM₁₀ and

⁹ There also have been significant improvements in ambient air quality in the Granite City area, with monitoring in recent years showing attainment of the historic federal National Ambient Air Quality Standards (NAAQS) for PM_{2.5}.

PM_{2.5} emissions with the new control system, presumably for purposes related to the state implementation plan. Why is there no ongoing accountability for PM₁₀ and PM_{2.5} emissions?

The permit addresses the particulate emissions of the BOFs in terms of PM because this currently is the most effective and practical way to address these emissions. This is also reason why the Agreement between US Steel and the Illinois EPA addressed the particulate emissions of the BOFs in terms of PM. This is possible because PM, PM₁₀ and PM_{2.5} are all different approaches to the measurement and quantification of particulate.¹⁰ As a consequence, limits on the particulate emissions of an emission unit in terms of PM also act in practice to generally address and restrict the unit's emissions of PM₁₀ and PM_{2.5}. In the simplest terms, a lower limit for particulate emissions in terms of PM, also results in lower emissions of particulate as PM₁₀ and PM_{2.5}.

Currently, the most effective way to address control of particulate emissions from BOFs is as PM because this is how the particulate emissions of BOFs and their control systems have historically been addressed. There is a body of emission testing upon which to rely when making projections for the PM emission rates that are or will be achievable from BOFs with the use of certain control technology. A similar body of data does not exist for the control of emissions in terms of PM₁₀ or PM_{2.5}. As a consequence, emission limits expressed in terms of PM can effectively be more stringent than limits expressed in terms of PM₁₀ or PM_{2.5}. Since they have a better basis, they do not need to account for the high level of uncertainty that would need to be considered if limits were set in terms of PM₁₀ or PM_{2.5}.¹¹ Emission limits in terms of PM are also expected to be more effective because procedures for testing PM emissions have been used for decades and the conditions needed for accurate measurements are well understood. This is not the case for PM₁₀ or PM_{2.5}.¹² This means that another source of uncertainty

¹⁰ USEPA categorizes particulate as supercoarse, coarse, fine and ultra fine. Supercoarse particulate has an aerodynamic diameter of greater than 10 microns, coarse particulate has an aerodynamic diameter between 2.5 and 10 microns, fine particulate has an aerodynamic diameter between 2.5 and 0.1 microns, and ultrafine particulate has an aerodynamic diameter of 0.1 microns or less. PM₁₀ is composed of coarse, fine, and ultrafine particulate. PM_{2.5} is composed of fine and ultrafine particulate. As such, PM_{2.5} is a subset or component of PM₁₀.

¹¹ For example, if PM_{2.5} makes up approximately 20 percent of the particulate emissions of an emission unit after control, a limit of 0.005 gr/scf for PM is generally equivalent to a limit of 0.001 gr/scf for PM_{2.5}. ($0.005 \text{ gr/scf} \times 0.20 = 0.001 \text{ gr/scf}$).

In actual practice, when relying upon the relationship between different forms for particulate, one should consider the accuracy and reliability of the available data for particle size distribution (i.e., the percentage of the PM emissions that are of different sizes). The better the data for particle size distribution and the lower the variability in this data, the simpler and more consistent the relationship. For example, if the available data is only sufficient to indicate that between 10 and 30 percent of the PM emissions are PM_{2.5} (i.e., 20 ± 10 percent), a limit for PM_{2.5} based on a PM emission rate of 0.005 gr/scf would reasonably be set at 0.0015 gr/scf. To provide the necessary assurance that the limit can be complied with and is "achievable," the limit must be based on the upper bound for the fraction of PM that may be PM_{2.5}. In this example, this results in a PM_{2.5} limit of 0.0015 gr/scf. ($0.005 \text{ gr/scf} \times 0.30 = 0.0015 \text{ gr/scf}$).

Incidentally, if condensable particulate is present, another consideration for this relationship is the data that is available for emissions of condensable particulate. The relationship between emissions of PM, PM₁₀ and PM_{2.5} is most direct when condensable particulate is not a significant fraction of the particulate emissions, as is the case for the emissions of BOFs.

The need for any of these considerations is avoided if limits for particulate can simply be set in terms of PM.

¹² For example, USEPA has not yet developed a reference method for testing emissions of filterable PM₁₀ or PM_{2.5} from "wet stacks." In a wet stack, moisture in the flue gas may lead to agglomeration of individual particles as they pass through the test apparatus. This prevents reliable and accurate measurements of PM₁₀ or PM_{2.5} emissions. The current test methods for filterable PM₁₀

that would be present for limits in terms of PM_{10} or $PM_{2.5}$ is avoided when limits are set for PM.

In this case, limits in terms of PM are also more practical because the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, addresses particulate emissions from BOFs in terms of PM. Accordingly, the performance testing that is required pursuant to this NESHAP will also serve to address compliance with the permit limits for particulate. As such, compliance with particulate limits in terms of PM will be easier to implement.

Moreover, the Agreement between US Steel and the Illinois EPA was made possible because it addresses particulate emissions in terms of PM, rather than $PM_{2.5}$. This enabled US Steel to make commitments for the emissions of the new baghouse control system that US Steel was confident could be met. It also minimized US Steel's burden for additional emissions testing that would not be required by the NESHAP. At the same time, limits for the new control system could be and were still be set in the Agreement that should significantly reduce the secondary emissions of the BOFs, including emissions as $PM_{2.5}$.

8. Since there is a difference between $PM_{2.5}$ and PM_{10} , why would the draft construction permit for the new baghouse control system not set limits for $PM_{2.5}$.

As discussed, in this case, the difference between PM and $PM_{2.5}$ is not sufficient to support setting an emission limit in this construction permit in terms of $PM_{2.5}$. Reductions in the particulate emissions of the BOFs can be achieved with an emissions limit for the baghouse system that is in terms of PM.

9. How significant is it that the Agreement between US Steel and the Illinois EPA sets emission limits for particulate in terms of PM? Does this act to preclude the establishment of emissions limits in terms of $PM_{2.5}$ in the construction permit?

The Agreement does not directly preclude the establishment of limits for $PM_{2.5}$ in the construction permit for this emission reduction project. However, the approach taken to particulate emissions in the Agreement is significant as it is a reflection of the various considerations that culminated with an Agreement that addresses particulate emissions with limits that were expressed in terms of PM.

10. Given that the purpose of the new baghouse control system is to reduce the $PM_{2.5}$ emissions of the BOFs, that the Granite City area is designated nonattainment for $PM_{2.5}$ and could well be nonattainment under revisions to the $PM_{2.5}$ NAAQS that USEPA has proposed, is there anything that prevents Illinois EPA from putting a $PM_{2.5}$ limit in the construction permit?

As discussed, a variety of considerations lead to a construction permit that addresses control of particulate emissions from the BOFs in terms of PM. Most significantly, a limit that addresses the particulate emissions of the BOFs in terms of PM also addresses emissions of $PM_{2.5}$, likely more

and/or $PM_{2.5}$ were developed for "dry stacks," where agglomeration is not a factor, and accordingly are only appropriate for testing of dry stacks.

effectively than if a limit were to be established in terms of PM_{2.5}. Accordingly, factors cited by this comment do not provide an adequate basis to set limits in terms of PM_{2.5} in the construction permit for the new baghouse control system.

11. It seems that the draft construction permit for the baghouse control system has many provisions that are not in the Agreement. This suggests to me that the Illinois EPA chose not to put a PM_{2.5} limit in that permit.

The draft construction permit would not set any emission limits that are not established by the Agreement or by applicable emission standards. The "other" provisions in this draft permit, which are broadly referred to by this comment, would deal with testing, operational monitoring, recordkeeping and reporting. These provisions would serve to verify ongoing compliance with the applicable emission limits. These provisions would also be needed to address the transition from the current requirements for testing, operational monitoring, recordkeeping and reporting to the new requirements that will apply with the baghouse control system. Finally, the permit would rely upon the general authority of the Illinois EPA to reasonably require sources to gather emission and emission related data. These provisions in the draft construction permit would be reasonable and appropriate, addressing aspects and implications of this emission reduction project that were not explicitly addressed in the Agreement. The presence of these provisions in the draft construction permit does not show that it would be appropriate for the construction permit for the baghouse system to set limits for PM_{2.5} emissions.

12. Under what circumstances would the Illinois EPA set a PM_{2.5} limit in a construction permit?

Construction permits issued by the Illinois EPA currently include limits for PM_{2.5} emissions when federal or state "New Source Review" (NSR) rules¹³ necessitate such limits because of the nature and circumstances of the projects that are the subjects of the permits. The NSR rules do not provide a basis to set limits for emissions of PM_{2.5} in the construction for the new baghouse control system for the BOFs. This is because this project will reduce the emissions of PM_{2.5} from the BOFs.¹⁴

¹³ In Illinois, the New Source Review (NSR) Rules consist of the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21, and state rules for Major Stationary Source Construction and Modification (MSSCAM), 35 IAC Part 203.

¹⁴ In general, construction permits currently set emission limits in terms of PM_{2.5} for two types of projects relative to emissions of PM_{2.5}, "minor projects" and "major projects." For minor projects, which are far more common, construction permits set limits for PM_{2.5} emissions as needed to address applicability of NSR. The limits for PM_{2.5} emissions in these permits restrict emissions or the increases in emissions of PM_{2.5} from a source or project to less than the emission thresholds at which the project would be considered major under the applicable NSR rules for its PM_{2.5} emissions. However, since limits for PM emissions also serve to restrict emissions of PM_{2.5}, limits in terms of PM_{2.5} are only set when limits in terms of PM or, in some cases, PM₁₀ will also not be sufficient to address applicability of NSR rules to a project for PM_{2.5} emissions.

For major projects for emissions of PM_{2.5}, which are far less common, NSR rules now generally require that the construction permits for such projects explicitly address PM_{2.5} emissions, with limits that represent Best Available Control Technology or the Lowest Achievable Emission Rate that are in terms of PM_{2.5} emissions.

The relevant emissions thresholds under the NSR rules that distinguish minor projects from major projects, i.e., major new sources and major modifications, are as follows:

Thresholds for a major source:

Federal PSD rules, 40 CFR 52.21 - Either 100 or 250 tons/year, depending on the category of source

State nonattainment NSR rules, 35 IAC Part 203 - 100 tons/year

13. Do any BOF shops at steel mills in the United States have limits for PM_{2.5} emissions?

Given the current circumstances for control and regulation of PM_{2.5} emissions, the Illinois EPA does not believe that any existing BOF shops in the United States, similar to this BOF shop, are subject to limits expressed in terms of PM_{2.5} emissions.¹⁵ In any case, it would not be an appropriate use of Illinois EPA resources to conduct a survey to definitively answer this question. This is because even if another existing BOF shop in the country is subject to limits for PM_{2.5} emissions, it would not show that it is appropriate to include such limits in this construction permit. As already discussed, emissions of PM_{2.5} can be addressed and restricted by limits for emissions of PM. This is because PM_{2.5} is a component of PM so limits for PM emissions act in practice to also constrain PM_{2.5} emissions.

14. There are gaps in the description of the new baghouse in the application for the new baghouse control system that make it difficult to evaluate the draft construction permit. On the general data and information form for the baghouse, the manufacturer and model number of the baghouse are shown as "to be determined." On the form for filter control equipment, the filter material is described simply as "polyester." The filtering area is also "to be determined." Inlet emission stream parameters, including mean particle diameter are unknown. Are there reasons why these details are not provided or were marked the way they were? Has Illinois EPA obtained any more information for the baghouse, such as the supplier, model number, or filter area or details concerning the operation of the baghouse?

The application contains the information that is currently available for the new control system. US Steel has not yet entered into a contract for this project and the new baghouse has not yet been designed.¹⁶ The application is based on a preliminary or conceptual design that US Steel had prepared for the project, including the performance specifications that are to be met by the baghouse, i.e., a PM emission rate of no more than 0.005 grains/dry standard cubic foot (gr/dscf). Given the cost of this project, US Steel will not enter into a contract for the baghouse until after this project is fully permitted. Only then will a firm be selected to provide the baghouse and the engineering design of this device begin.

15. Even though the draft construction permit would not set limits for emission of PM_{2.5}, it would require testing for emissions for PM_{2.5}, which I am not questioning. What use does the Illinois EPA plan to make of the results from this testing?

This testing would identify the specific relationship between the emissions of PM, PM₁₀ and PM_{2.5} from the BOFs. As such, PM_{2.5} emission

Threshold for a major modification for emissions of PM_{2.5} - 10 tons/year

¹⁵ It is expected that only BOFs that recently underwent permitting for proposed modifications, if any, will be subject to limits that address emissions of PM_{2.5}. Such limits would be a consequence of the New Source Review rules that apply to modifications and, even if technically sound, would not provide any insight as to an appropriate limit for these BOFs as they are not being modified.

¹⁶ Due its size and other project-specific considerations, the baghouse for this project will be designed by the selected manufacturer specifically for the project. The baghouse will not be a stock model of baghouse.

data gathered by this testing would improve the data used in future air quality modeling that is conducted for the Granite City area or the St. Louis region for PM_{2.5} air quality. If found to be necessary for the attainment of the NAAQS for PM_{2.5}, including attainment of the anticipated future revisions to the PM_{2.5} NAAQS by USEPA, the data gathered by this testing could assist in development of new standards for the BOFs, either in terms of PM, PM₁₀ or PM_{2.5} emissions, as appropriate.¹⁷ Finally, the data gathered by these tests would support future permitting in Illinois and in other states in circumstances in which NSR rules do require that limits be set for particulate emissions as PM_{2.5}.¹⁸

16. Condition 3-1(b)(ii) of the draft construction permit, as it addresses the required testing for emissions of filterable PM₁₀ and PM_{2.5}, should not specify that this testing must be conducted with USEPA Method 201 or 201A. Rather, use of only Method 201A should be specified. This is because Method 201 only measures PM₁₀ emissions, whereas Method 201A can be used for measurements of both PM₁₀ and PM_{2.5}.

The error in the draft permit identified by this comment has been corrected in the construction permit that has been issued. That is, the measurements of PM₁₀ and PM_{2.5} emissions that are required must be made using USEPA Method 201A.

17. Condition 3-1 (e)(iii) of the Draft Construction Permit would require the final report for emission testing that is submitted to the Illinois EPA to contain the operating parameter limits for the new baghouse control system that are proposed by US Steel based on such testing. Under what circumstances are proposed operating parameters limits considered applicable? When proposed operating parameter limits are submitted, what are the procedure and the timeframe in which Illinois EPA reviews and establishes them?

The provisions of the Iron and Steel NESHAP, including 40 CFR 63.9(h)(2)(ii), 63.7790(b)(1), 63.7800(b)(3) and 63.7824(a) and (c), govern the operating parameters limits for the BOFs with baghouse control system, which are addressed by this comment. This NESHAP does not provide for approval of a source's proposed operating parameters limits by a permitting authority. Rather the limits that are established for operating parameters under this NESHAP are the levels of operating parameters during performance testing. These levels are contained or documented in the current Operating and Maintenance Plan for a subject facility which the source must maintain pursuant to this NESHAP, which plan specifies how the subject facility must be operated.¹⁹

¹⁷ It should not be expected that this testing would ever be used to demonstrate compliance with standards or limits for PM_{2.5} emissions, as there would not be any limits in terms of PM_{2.5} emissions when this testing is conducted.

¹⁸ US Steel would also use the results of this testing in preparing the "performance report" required for this project by Condition 6(d) of the construction permit. In this report, US Steel must evaluate the reduction in emissions that is achieved by this project for emissions of particulate as PM_{2.5}.

¹⁹ In this case, to revise or set new operating parameter limits for the capture system on the BOFs under the Iron and Steel NESHAP, US Steel must first submit a written notification or request to the Illinois EPA to conduct performance tests that would be the basis of the new operating parameters limits. In this case, this notification would address the "initial performance test" conducted for the BOFs with the new baghouse control system. It is expected that this notification would also address the initial operation of the BOFs with the baghouse system, until the performance tests are conducted. During this period, the current limits for operating parameters of the capture system, with control of secondary emissions with the existing ESP, would no longer be applicable but testing will not yet have been conducted to demonstrate the adequacy

18. Condition 3-2(a) of the draft construction permit would require US Steel to make measurements in order to determine the PM efficiency of the new baghouse. The condition would allow for these measurements to be made directly or indirectly. Would direct measurement likely be more accurate than indirect? If so, why not require direct measurement?

These measurements, which would relate to the efficiency of the new baghouse control system,²⁰ are being required to obtain information on the amount of PM collected by this system. This information is of interest to the Illinois EPA as related to the overall reduction in particulate emissions of the BOFs that is achieved in actual practice by this new system.²¹ The required measurements are not needed to confirm compliance with an applicable limit or control requirement. As such, it is reasonable and appropriate for the construction permit to provide flexibility in the approach that US Steel uses for these measurements. At this time, this is especially true, as neither approach to measurements is preferred. Direct measurements of the PM loading into the baghouse would be expected to be more precise and correlate directly with measurements of emissions. However, these measurements would be taken over a relatively short period of time so would not necessarily be more accurate than indirect measurements, based on the amount of particulate collected by this system over a week or month. Indirect measurements would likely be more accurate as they address a longer period of operation of the BOFs. However, they would be less precise, as much larger amounts of material would be involved. As such, there is not a clear preference for the approach that should be taken to the measurements.

19. Currently with the ESP, the PM emissions of the BOP furnaces are reported to be 439.5 tons/year. With the new baghouse system, they would be 405.4, which boggles my mind.

The emission data cited by this comment, which was provided by US Steel for the application for a construction permit, is a very conservative evaluation of the change in emissions that would accompany this project. It reflects maximum operation of the BOFs, at their annual capacity, and

of the new limits for operating parameters with the baghouse system. In conjunction with US Steel's written notification for planned testing, subject to any directives from the Illinois EPA in response to this notification, US Steel must also revise its operation and maintenance plan under the NESHAP. This revision would need to address the levels of operating parameters during the initial operation of the BOFs with the baghouse, consistent with US Steel's description of operation during this period as provided in the written notification for testing.

The next step in setting new operating parameter limits is for performance tests to be conducted for the BOFs to demonstrate the adequacy of the new limits. These performance tests would be conducted with the new baghouse control system operating at the levels of operating parameters that US Steel seeks to establish as the new limits. Following the date of testing, US Steel would be expected to continue to operate at or above the levels of parameters present during testing if testing demonstrated compliance while operating at those levels.

The final step in the process of setting new operating parameter limits is US Steel's submittal to the Illinois EPA of the report for this testing, with the new values for these limits. With this report, US Steel must also certify that the BOFs operated at these values of operating parameters during testing and that the testing was properly conducted for the purpose of setting new limits for operating parameters. As part of this step, US Steel must also revise its operating and maintenance plan to reflect that these new limits for operating parameters are applicable on a continuing basis.

²⁰ The efficiency of a baghouse, in percent, is calculated as follows:

$$100 \times [1 - (\text{Inlet Mass} - \text{Outlet Mass}) / \text{Outlet Mass}] = \text{Percent Control Efficiency}$$

²¹ Based on public comments, this information is also of concern to the public as it would support comparison between the new baghouse control system and baghouse systems at other sources.

a minimum level of improvement in control of emissions by the new baghouse system. Accordingly, this data overstates both current emissions and future emissions. A better assessment for the change in emissions is provided later, in response to another comment.

20. Please clarify in the permit record what the projected and baseline actual emissions are for each modified or affected emission unit. As presented in the available support information, it is not clear whether the reported "current" and "future" emissions represent "baseline actual emissions" and "projected actual emissions", as defined at 40 CFR 52.21(b)(48) and (b)(41), respectively. See Statement of Basis at page 8. Clarification is needed to ascertain the actual amount of the projected overall emissions reduction due to the project.

The Illinois EPA does not believe that the information requested by this comment, which relates to the planned issuance of a construction permit for the new baghouse control system, is needed to support that proposed action. This is because an essential element of a modification under New Source Review is that a proposed project would act to increase emissions of one or more pollutants that are regulated under New Source Review. As discussed, the proposed baghouse system would be an emission reduction project for particulate emissions of the BOFs and would be carried out to meet provisions of the Agreement. The new baghouse system would not increase the capacity or efficiency of the BOFs. There also would not be any collateral increases in emissions of other, non-target pollutants from the operation of the system. As such, the new baghouse system should not be considered a modification for purposes of New Source Review.²²

Even though the reduction in particulate emissions need not be quantified in response to this comment, the Illinois EPA has further examined the amount of the emissions reduction that may be assumed for this project. This evaluation has been conducted in terms of emissions of PM₁₀ because underlying emission data is more reliable for PM₁₀ than for PM_{2.5}. For purposes of PSD, 40 CFR 52.21, the historic actual emissions of the BOFs are appropriately assumed to be on the order of 314 tons of PM₁₀ per year.²³ The future emissions of projected future actual emissions should be expected to be at most about 260 tons of PM₁₀ per year.²⁴ This yields a reduction of approximately 54 tons of PM₁₀ per year.

21. Condition 1(b) of the draft construction would require US Steel to submit its initial revisions to the operation and maintenance plan required by the Iron and Steel NESHAP to address the BOFs with the new baghouse control system at least 30 days in advance of initial operation with this

²² For example, refer to correspondence from USEPA concerning a proposed improvement of particulate matter control at Lehigh Portland Cement in Mitchell, Indiana (Letter, February 12, 2001, Pamela Blakley, USEPA Region 5, Air Programs Branch, to Paul Dubenetzky, Office of Air Management, Indiana Department of Environmental Management.)

²³ The average of the PM₁₀ emissions reported by US Steel in its Annual Emission Reports for the peak years of production during the last ten years, 2004 and 2005, is 313.90 tons per year. In each of these years, the BOFs operated at about 72 percent of their permitted annual rate.

²⁴ The future emissions were conservatively calculated assuming that the BOFs would actually operate near their permitted annual rate compared to the maximum rate that US Steel has achieved in practice, i.e., 90 percent compared to 75 percent. To account for the normal operation of control devices, the baghouse and ESP were also conservatively assumed to comply with applicable emission standards under the new control configuration by 40 and 20 percent respectively. For example, rather than having emissions of 31.9 pounds per hour (745,200 scfm/min x 0.005 gr/scf x 60 min/hr ÷ 7,000), on annual basis, actual PM₁₀ emissions would be 19.2 pounds/hr (31.9 x {1.0 - 0.6} = 19.14 pounds/hour).

system. However, the revision to this plan should not be submitted until after the initial performance testing is performed and completed, as required pursuant to Condition 3-1(a)(i). As this performance testing is needed to establish new limits for operating parameters, it is necessary for the testing to be completed in order to accurately revise this plan. Thus, this condition should specify that US Steel must submit a revised operation and maintenance plan after it has determined the new and revised operational limits for the control system.

This comment did not support any changes to the construction permit. As observed by this comment, US Steel will need to revise its operation and maintenance plan after performance testing is conducted for the BOF with the new baghouse control system. However, an earlier revision to this plan will also be needed, as addressed by Condition 1(b). This is because the BOFs must always be operated in accordance with a current operation and maintenance plan. If US Steel does not make any revisions to this plan until after initial performance testing with the new baghouse control system is completed, the BOFs would not be operating in accordance with the current plan.²⁵

Incidentally, the subsequent revision to the operation and maintenance plan, which must occur after the initial performance testing of the BOFs with the baghouse control system, is also addressed by the permit. It is addressed in Condition 3-1(a)(i) in the permit, which deals with the initial testing of the BOFs with the new control system in place.

22. Condition 3-1(a)(i) of the draft construction permit would require that the source "promptly" conduct performance testing for PM emissions in accordance with the NESHAP following initial operation of the BOFs with the baghouse, to establish new operating limits for the capture system for the BOFs. This condition should provide that "promptly" means that the performance test will be conducted after shakedown. It should also specify that the performance testing be conducted to demonstrate compliance with the emission limit in Condition 2(a) and applicable NESHAP limits for the baghouse and the ESP, as well as to establish new and revised operational limits for the baghouse and ESP control systems.

Changes have been made in the issued permit in response to this comment. First, as requested by this comment, Condition 3-1(a)(i) in the issued permit specifies the goals of the required testing, i.e., to verify compliance with the applicable emission limits for PM set by the NESHAP and this permit and to establish new operating limits for the capture systems for the BOFs. This clarification is reasonable since this testing will have several functions.

As also requested by this comment, Condition 3-1(a)(i) in the issued permit does not require that this initial testing for PM emissions be "promptly" conducted once the new baghouse control system begins operation. Instead, the condition requires that this testing be conducted within 180 days of initial startup of the baghouse system or, if delayed by force majeure events, such later date that testing can first be conducted. This is reasonable and appropriate as it will

²⁵ The existing Operation and Maintenance Plan, addressing operation of the BOFs with only the ESP control system, will immediately become inadequate when the new baghouse control system begins to operate. First, the plan would not address the baghouse control system. Second, the provisions in the plan for operation of the ESP control system would no longer be appropriate as secondary emissions are being controlled by the baghouse control system.

accommodate typical shakedown of equipment by US Steel and initial emission testing. However, the condition does not specify that initial testing shall be conducted only after shakedown of the new system is complete, as was requested by the comment. Rather the condition reflects the common practice of air pollution control rules, including the NSPS and NESHAP, when dealing with required timing of initial emission testing. Emission testing is required to be conducted within a set number of days from the date of initial startup of an emission unit or the date that new requirements become applicable. Any extensions of this timing are addressed on a case-by-case basis through administrative discretion. This accommodates typical or routine shakedown of equipment prior to requiring initial emission testing while also accommodating unforeseen events that cannot practically be more concretely addressed by the provisions of a rule. The comment does not explain why it would be appropriate to deviate from this established practice in this case, to directly link the timing for emission testing to the completion of shakedown.²⁶

This change to Condition 3-1(a)(i) has implications for the permit that were not considered by this comment but also resulted in changes in the issued permit. As the permit would not require that emission testing of the BOFs with the new baghouse control system be conducted promptly, the actual duration of the "interim period" until this testing is conducted is uncertain and could be significant. This is of concern as related to the effectiveness of capture of secondary emissions of the BOFs during this transition period.²⁷ This is now directly addressed in the issued permit by new Condition 3-2. It requires US Steel to promptly conduct initial observations, in accordance with the Iron and Steel NESHAP, for the opacity of emissions from the roof monitor of the BOF shop. Thereafter, until emission testing with the new baghouse system is conducted, these observations must be made at least every 15 operating days. Since these opacity observations will address the uncaptured emissions from the BOF shop, they will address the effectiveness of capture of emissions during the interim period. They will serve to directly determine compliance during this period with the applicable opacity limit for the BOF shop until the initial performance testing of the BOFs with the baghouse control system is conducted.

23. In addition to requiring testing for emissions of particulate (PM, filterable PM₁₀ and PM_{2.5}, condensable particulate matter) and lead, draft Condition 3-1(a)(ii) would require testing for emissions of NO_x, CO and VOM within one year of initial operation of the new baghouse control system. Since this system will not function to control emissions of gaseous pollutants, testing should not be required for NO_x, CO and VOM. Because there are no limits for emissions of these pollutants from the baghouse, testing the baghouse for these pollutants would yield results that are only minimally useful. Also, based on the Iron and Steel NESHAP and a recent information collection request by USEPA, VOM and CO are not

²⁶ In addition, setting a deadline for this testing based on completion of shakedown would be problematic because the term "shakedown" is not defined by the Iron and Steel NESHAP. Moreover, a certain period of time would occur between the date that "shakedown" is completed and the date that emission testing can be scheduled. (Otherwise, shakedown would, at least in part, be defined circularly as the date when required emission testing is or could first reasonably be conducted.)

²⁷ The performance of both the baghouse and ESP control devices during the transitional period will be directly addressed through the continuous monitoring systems on these devices, which systems will be operational during this period. The new baghouse will have a bag leak detection system. The existing ESP already has a continuous opacity monitoring system.

pollutants of concern for control devices for BOF secondary emissions. Accordingly, the permit should not require emissions testing for these pollutants. Moreover, if testing is required for these pollutants, it should only be for the ESP. This would not only be more effective, but would also be consistent with historical practice. In particular, should testing be required for the ESP for NO_x, CO and VOM, test results can be compared to applicable permit limits (CAAPP Permit No. 96030056, Condition 7.5.6(c)).

In response to this comment, changes have been made in the issued permit related to testing of the baghouse control system for emissions of NO_x, CO and VOM. In the issued permit, new Condition 3-1(a)(ii)(B) now provides that emissions testing for the baghouse for these pollutant(s) would not be required if preliminary measurements show emissions of pollutant(s) that are below the detection level of the test method(s).²⁸ As observed by this comment, emissions of NO_x, CO and VOM from BOFs are generally considered to be associated with the refining process rather than charging and tapping. Accordingly, the issued permit would not require emission testing for the baghouse for these pollutants if this is confirmed by preliminary measurements to characterize emissions of these pollutants. In this regard, this comment did not provide the results of actual emission measurements that confirm that emissions of NO_x, CO and VOM from BOFs are effectively associated with the refining process. Such data is important because, as noted by the comment, permit limits have been established for emissions of these pollutants from the BOFs that occur through the ESP stack.

Changes have not been made to the testing requirements for the ESP. As already noted, permit limits have previously been established for emissions of NO_x, CO and VOM from the BOFs as currently controlled by the ESP. As testing of the ESP under the new control configuration is being required for particulate and lead, it is reasonable that testing also be conducted for these other pollutants for which limits have been established. This testing will provide timely confirmation of the emission rates of these pollutants under the new control configuration. As emission testing must be conducted for the ESP in any case, US Steel will only bear an incremental increase in cost for testing additional pollutants.

24. Condition 3-1(b)(i) and (ii) of the draft construction permit would provide, respectively, that PM testing must be conducted using applicable procedures specified in the NESHAP and testing of other pollutants must be conducted using applicable USEPA procedures. In Condition 3-1(b)(ii), the draft permit list methods for filterable PM₁₀ and PM_{2.5} and condensable PM, which seems inconsistent with the statement to use applicable USEPA methods for testing pollutants other than PM. This will create ambiguity as it is unclear whether the listed test methods for PM₁₀ and PM_{2.5} are intended to apply to testing for other pollutants, which does not seem appropriate. Clarification is sought regarding the applicable test methods for PM and other pollutants.

Condition 3-1(b)(ii) in the draft permit did not specify test methods for four pollutants, i.e., lead, NO_x, CO and VOM, for which the permit would

²⁸ As the issued permit would now address preliminary measurements to characterize emissions, related changes have also been made to the required contents of test plans and emission test reports.

require testing. In response to this comment, this condition in the issued permit also identifies the USEPA test methods that are to be used for testing emissions of these four pollutants unless the Illinois EPA approves use of other USEPA test methods as part of its review of the test plan. This eliminates uncertainty about the methods that are expected to be used for testing of these pollutants.

With respect to methods for testing "particulate," the draft permit clearly specified the methods that would be used for testing different "classes" of particulate, as follows. In this regard, the terms PM, filterable PM₁₀, filterable PM_{2.5} and condensable particulate matter refer to different classes of particulate that are, in practice, effectively defined by the test methods that are used for measurement of emissions. Accordingly, the only change that has been made in the issued permit related to testing of particulate is a correction related to the method used for testing PM₁₀ and PM_{2.5}, as has already been discussed.²⁹

Methods 5, 5D or 17 (methods specified by the NESHAP)	Particulate matter (filterable)
Method 201A	Filterable PM ₁₀
Method 201A	Filterable PM _{2.5}
Method 202	Condensable particulate matter

25. I appreciate the potential air quality benefits of this project and the work that US Steel and the Illinois EPA and have done for this project.

This comment, which does not request any changes to the draft permits, is acknowledged.

FOR ADDITIONAL INFORMATION

Questions about the permit decision should be directed to:

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²⁹ It should be noted that the term "particulate" is used in this Responsiveness Summary to generically address the various forms in which particulate have been regulated or addressed by USEPA and by other regulatory agencies. The term particulate is not used to designate "particulate matter (PM)," which is a specific type of particulate that is subject to regulation. Most noteworthy, PM is the form of particulate for which USEPA has set limits in the Iron and Steel NESHAP and for which limits are set in the Agreement.

LISTING OF SIGNIFICANT CHANGES
BETWEEN THE DRAFT PERMIT AND THE ISSUED PERMIT

PART 1: FINDINGS AND CONDITIONS FOR THE CONSTRUCTION PERMIT

Finding 3(a)(ii):

This finding no longer refers to provisions in the CAAPP permit for the Granite City Works that were established pursuant to 35 IAC Part 201 Subpart I related to "startup" of the BOFs. This is because the CAAPP permit for the source does not include any such provisions for the BOFs. Accordingly, this change corrects an inadvertent error in the draft permit.

Condition 3-1(a)(i):

In response to comments, two changes have been made to this condition. First, this condition which addresses the initial PM testing of the BOFs with the new baghouse, now specifies the purpose of the emission testing that is required. That is, the purpose of this testing are to verify compliance with the applicable emission limits for PM set by the NESHAP and this permit and to establish new operating limits for the capture systems for the BOFs. This clarification requested by a comment is reasonable since this testing will have multiple purposes.

Second, this condition does not require that the initial PM testing of the BOFs with the new baghouse system be "promptly" conducted once this system begins operation. Instead, the condition requires that this testing be conducted within 180 days of initial startup of the baghouse system or, if delayed by force majeure events, such later date that testing can first be conducted. This change is reasonable because it was recognized that compliance during the period until this testing is performed can appropriately be addressed by a means other than testing, i.e., appropriate observations for opacity. Accordingly, this condition now accommodates typical shakedown of the new equipment followed by initial emission testing, as requested by a comment. In this regard, the condition reflects the common practice of air pollution control rules, including the NSPS and NESHAP, when dealing with required timing of initial emission testing. This testing is required to be conducted within a set number of days from the date of initial startup of an emission unit or the date that new requirements become applicable. Any extensions of this timing are addressed on a case-by-case basis through administrative discretion. This accommodates typical or routine shakedown of equipment before initial emission testing is required while also accommodating unforeseen events that cannot practically be more concretely addressed by the explicit provisions of a rule.

This change to this condition has implications for the permit that were not considered by this comment but which also resulted in changes in the issued permit. As the permit would not require that emission testing of the BOFs with the new baghouse control system be conducted promptly upon startup of the new baghouse system, the actual duration of the interim period until this testing is conducted is uncertain and could be significant. This is of concern as related to the effectiveness of capture of secondary emissions of the BOFs during this transition period. This is now directly addressed by new Condition 3-2 in the issued permit, which now requires observations for the opacity of emissions from the roof monitor of the BOF shop, as discussed further below.

Condition 3-1(a)(ii):

In response to a comment, changes have been made to this condition which addresses testing of the baghouse control system for emissions of NO_x, CO and VOM. In the issued permit, new Condition 3-1(a)(ii)(B) now provides that emissions testing for the baghouse for these pollutant(s) would not be required if preliminary measurements show emissions of these pollutant(s) are below the detection level of the test method(s). As observed by this comment, emissions of NO_x, CO and VOM from BOFs are generally considered to be associated with the refining process rather than charging and tapping. Accordingly, the issued permit would not require emission testing for the baghouse for these pollutants if this is confirmed by preliminary measurements to characterize emissions of these pollutants, i.e., emissions are below the detection limit of the applicable test method. In addition, as the issued permit would now address preliminary measurements to characterize emissions, related changes have also been made to the required contents of test plans and emission test reports (See Conditions 3-1(c)(viii) and (e)(viii).)

Condition 3-1(b)(ii):

In response to comments, changes have been made to this condition which addresses the methods that are to be used for emission testing. First, the condition provides that Method 201A is to be used for testing for emissions of filterable PM₁₀ and PM_{2.5}. The condition no longer provides that such measurements may be conducted using Method 201. This is because only Method 201A can provide measurements for both PM₁₀ and PM_{2.5}. This corrects an error in the draft permit.

Second, this condition, now identifies the USEPA test methods that are to be used for testing emissions of four pollutants, lead, NO_x, CO and VOM, unless the Illinois EPA approves use of other USEPA test methods as part of its review of the test plan. The draft permit did not specify test methods for these pollutants, for which emission testing would be required. This change eliminates uncertainty about the methods that are expected to be used for testing of these four pollutants.

Condition 3-1(b)(ii):

This condition, which requires that observations for opacity of emissions from the BOF shop be conducted during testing for particulate emissions, now specifically refers to 40 CFR 63.7823(d). These observations must be made in accordance with applicable provisions of the Iron and Steel NESHAP. The change was made to emphasize this requirement.

Conditions 3-1(c)(viii) (new):

This new condition would require the relevant test plans submitted by US Steel prior to emission testing to provide a description of the proposed approach to preliminary measurements for emissions of NO_x, CO, or VOM from the BOF baghouse if US Steel is planning to conduct such measurements to determine whether emissions are below the detection limit of the applicable test method. This is a logical consequence of new Condition 3-1(a)(ii)(B).

Conditions 3-1(e)(viii) (new):

This new condition would require the relevant reports submitted by US Steel for emission testing include documentation for preliminary measurements that show

emissions of NO_x, CO, or VOM from the BOF baghouse are below the detection limit of the applicable test method if US Steel relied on such measurements to not conduct further emission testing for these pollutant(s). This is a logical consequence of new Condition 3-1(a)(ii)(B).

Condition 3-2 (new):

(In the issued permit, draft Condition 3-2 has been renumbered as Condition 3-3)

When the BOFs begin operating with the new baghouse control system, this new condition requires US Steel to promptly conduct initial observations, in accordance with the Iron and Steel NESHAP, for the opacity of emissions from the roof monitor of the BOF shop. Thereafter, until emission testing with the new baghouse system is conducted, these observations must be made at least every 15 operating days. Since these opacity observations will address the uncaptured emissions from the BOF shop, they will address the effectiveness of capture of emissions during the interim period. They will serve to directly verify compliance during this period with the applicable opacity limit for the roof monitor of the BOF shop until the initial performance testing of the BOFs with the baghouse control system is conducted.

This new condition is a logical corollary to the change that has been made to Condition 3-1(a)(i). There will now be an interim period until a performance test for PM emissions will be conducted, which test would also include simultaneous observations for the opacity of the emissions from the roof monitor of the BOF shop. It is now appropriate that the permit include compliance provisions as necessary to address compliance with applicable requirements during this interim period. The proper operation of both the baghouse and ESP control devices during this period will already be directly addressed through the continuous monitoring systems on these devices, which are required by the Iron and Steel NESHAP and must be operational during this period. (The new baghouse will have a bag leak detection system. The existing ESP already has a continuous opacity monitoring system.) However, the opacity of the emissions of the roof monitor on the BOF shop, which is a measure of the effectiveness with which the particulate emissions of the BOFs are captured with the new baghouse system, would not be addressed by the Iron and Steel NESHAP until the initial performance test is conducted. Thus, it is appropriate for the issued permit to now require opacity observations during the interim period to verify proper capture of emissions during this period.

Condition 6(a)(i):

This condition, which requires advance notice to the Illinois EPA prior to beginning operation of the BOFs with the new baghouse system, now also requires that this notice provide the expected timing of the initial opacity observations for emissions from the roof monitor on the BOF shop that are required during the "interim period." This is a logical consequence of the requirement for such observations, as it would enable the Illinois EPA to confirm the timeliness of such observations.

PART 2: CHANGES THAT ARE "PRE-AUTHORIZED" TO THE CAAPP PERMIT

(All changes are in the new version of Section 7.5 for the revisions to the CAAPP permit)

General Clarification of Terminology in Section 7.5:

Various changes have been made in Part 2 of the Construction Permit to improve the clarity or precision of the terminology that would be used in the revised CAAPP permit. In particular, the word "affected" would generally not be used in Section 7.5 in the revised CAAPP permit. In the context of Section 7.5 of the CAAPP permit and this permit action, the word "affected" is either superfluous or ambiguous. This is because this construction permit addresses specific emission units and control devices, e.g., the new baghouse control system and the existing BOFs. The word "affected" is not actually needed to categorically describe the emission units that are addressed by this permitting action, which are subject to a particular set of requirements. In addition, Section 7.5 of the CAAPP permit generally addresses "basic oxygen processes." The word "affected" is not consistently used in the current version of Section 7.5 of the CAAPP permit to further identify the basic oxygen processes that are being addressed. It would be confusing to now add the word "affected" to Section 7.5 of the CAAPP permit to specifically designate the new baghouse control system. Accordingly, the word "affected" has been removed. The generic terms for the emission units that are being addressed by Section 7.5 of the CAAPP permit continues to be "basic oxygen processes," consistent with the title of this section.

Similarly, the current Section 7.5 uses both the terms BOPF and BOF for the subject furnaces. Again, this is an unnecessary source of confusion. The revision to Section 7.5 consistently uses the term BOPF (i.e., NESHAP terminology) with two exceptions. The first exception is in the conditions for the state emission standards, in which the regulatory provisions uses the term BOF. The second exception is in introductory material, so as to explain that the terms BOPF and BOF mean the same thing.

Further Improvement of Organization of Section 7.5:

Upon further review of the draft permit, it was realized that further improvements needed to be made to the organization of Section 7.5 in the revised CAAPP permit. For example, state and NESHAP standards have been addressed in separate conditions, i.e., Conditions 7.5.3-1 and 7.5.3-2. Related records have been better grouped together in Condition 7.5.9. One-time, project-specific reporting requirements, which are carried over into the CAAPP permit from various construction permits, have been shifted into a separate condition dealing with such reports, Condition 7.5.10-1, to distinguish them from ongoing reporting requirements.

Improved Citations for the Iron and Steel NESHAP in Section 7.5:

Certain citations to the Iron and Steel NESHAP, 40 CFR 63 Subpart FFFFF, were improved. For example, in the initial condition in Section 7.5 of the revised CAAPP permit that addresses this NESHAP (now Condition 7.5.3-2), which identifies applicable NESHAP emission standards, the specific paragraphs from Table 1 of this NESHAP are now identified. Regulatory citations are also provided for certain records required by this NESHAP where those citations were missing. For example, see Condition 7.7.9(a)(v), which now appropriately provides a citation to 40 CFR 63.7843.

Removal of "Expired" Requirements from Section 7.5:

A few requirements that on their face are now outdated have been removed. For example, the initial operational requirements for the steam rings on the furnaces, which applied through October 31, 2012, have been removed (draft Condition 7.5.5-3(b)). The permit would provide that only the more rigorous requirements, as now apply, would be included in the revised CAAPP permit (Condition 7.5.5-3(a)).

Changes in Part II of the Permit That Carry Over Changes to Construction Permit/PSD Approval 95010001

New Condition 7.5.3-2(a)(ii) addresses new provisions added to Construction Permit/PSD Approval 95010001, when it was recently revised in December 2012. It is appropriate that these new provisions also be carried over into the revised CAAPP Permit as they now are applicable to the BOFs. In particular, "new" Condition 9 was added to in Permit 95010001 when it was revised. It requires US Steel to operate and maintain the BOFs and associated capture and control systems in accordance with applicable compliance requirements of the Iron and Steel NESHAP for the specific purpose of providing practical enforceability to certain other conditions in Permit 95010001 that apply to the BOFs. In this regard, the compliance requirements of this NESHAP will take the place of certain compliance requirements in Permit 95010001 that will no longer be applicable when the BOFs begin to be controlled by the new baghouse control system or other baghouse control system for secondary emissions of the BOFs. Given the ongoing function of the compliance requirements of the NESHAP as the mechanism for assuring compliance with certain requirements for the BOFs in Permit 95010001, it is appropriate that this function, as reflected in and addressed by Condition 9 of revised Permit 95010001, be carried over into the revised CAAPP permit.

Inclusion of the NESHAP Standard for Control Devices for Secondary Emissions from BOFs

New Condition 7.5.3-2(b)(ii) would include the relevant standard of the Iron and Steel NESHAP for control devices that control secondary emissions from BOFs in the revised CAAPP permit. This addition to the permit corrects an omission in the draft permit.

Changes in Part II of the Permit That Carry Over Changes in Part I of the Permit

Condition 7.5.7-1 - This condition repeats Condition 3-1 from Part 1 of the Construction Permit, which deals with emission testing of the BOFs with the new baghouse control system. It now includes the changes that have been made to Condition 3-1, as discussed above.

Condition 7.5.8-1(d) (new) - This new condition for the revised CAAPP permit repeats new Condition 3-2 from Part 1 of the Construction Permit, which deals with observations of the opacity of emission from the roof monitor on the BOF shop during the "interim period" before the initial testing with the new baghouse system is conducted. It is also appropriate that these requirements be included in the revised CAAPP Permit as they will apply to operation with the new control system. The requirements would be added to Condition 7.5.8-1

of the CAAPP permit as it addresses "Additional Requirements for Opacity Observations."

Condition 7.5.10-1(c)(i)(A) - This condition repeats Condition 6(a)(i) from Part 1 of the Construction Permit, which deals with the advance notice to the Illinois EPA prior to beginning operation of the BOFs with the new baghouse system. It now includes the changes that have made to Condition 6(a)(i), as discussed above.