

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

May 2012

Project Summary for the  
Planned Issuance of a Revision to  
Construction Permit/PSD Approval 95010001  
to Accommodate an Emissions Reduction Project at  
United States Steel Corporation's Granite City Works  
Granite City, Illinois

Source Identification No.: 119813AAI  
Construction Permit Application/Permit No.: 95010001

Schedule

Public Comment Period Begins: May 31, 2012  
Public Hearing: July 18, 2012  
Public Comment Period Closes: August 17, 2012

Illinois EPA Contacts

Permit Analyst: Kevin Smith  
Community Relations Coordinator: Brad Frost

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### **Attachments**

Attachment 1: Summary of Proposed Revisions to Permit 95010001

Attachment 2: Mark-Up Showing Planned Changes to Permit 95010001

## **I. Introduction**

United States Steel Corporation, Granite City Works (US Steel) has requested revisions to Construction Permit/PSD Approval 95010001, originally issued in 1996 for increases in production of iron and steel at the Granite City Works. The principal purpose of the revisions to this permit is to accommodate an emission reduction project that US Steel is planning, with the installation of new particulate control equipment for the two basic oxygen process (BOP) furnaces at this steel mill. This emission reduction project is the subject of a separate application for a construction permit, Application 11050006. The revisions to the Construction Permit/PSD Approval 95010001 would remove certain operational requirements for the BOP furnaces from this prior permit that would no longer be appropriate or possible with the new control equipment. The revisions to this prior permit would also remove operational requirements for these furnaces that are now considered obsolete or outdated given new requirements that apply to the furnaces, notably new standards for BOP furnaces adopted by USEPA. However, the revisions would not involve the emission limits for the BOP furnaces that were set by this permit. The revisions to the permit also would not involve requirements for these furnaces that are set by rule.

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed US Steel's request for revisions to Permit 95010001 and made a preliminary determination that it meets applicable requirements for revisions to the permit. Accordingly, the Illinois EPA has prepared a draft of the revised permit that it would now propose to issue. Before issuing this revised permit, the Illinois EPA is holding a public comment period and a public hearing to receive comments on the proposed issuance of a revised permit and on the proposed changes to the permit, as set forth in the draft of a revised permit.

## **II. Description of the Planned Emission Reduction Project for the BOP Furnaces**

In the planned emission reduction project for its two existing BOP furnaces, US Steel will construct a new control system to improve the control of particulate emissions from the furnaces. The new control system will have a baghouse and control particulate emissions from charging and tapping of the BOP furnaces. Charging is the step in the steel production cycle in a BOP furnace in which scrap metal and molten iron from the blast furnaces are charged to the furnace. Tapping is the step in the cycle in which the molten steel made in a furnace is poured into a ladle to await further processing and casting. The particulate emissions of the BOP furnaces from the refining step of the production cycle will continue to be controlled by the existing electrostatic precipitator (ESP) control system.<sup>1</sup>

The particulate emissions that accompany charging of the BOP furnaces are currently captured with local capture hoods in the area where emissions occur during charging. These hoods are currently ducted to the existing ESP, which removes particulate from the air that is drawn in by the hoods ("aspiration air") before this air is discharged to the atmosphere. Emissions from tapping of the furnaces are currently captured with the covers on the furnaces, which extend over into the area in which tapping takes place. The covers on the hoods are also ducted to the existing ESP. Flame

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<sup>1</sup> The control of particulate emissions from refining is facilitated as the lance holes on the BOP furnaces are equipped with "steam rings." The injection of steam into the space between the roof of the furnace and the oxygen lance acts to reduce loss of particulate through this space during refining.

suppression is also used to reduce the generation of emissions from tapping. The emissions of particulate from charging and tapping of the BOP furnaces that are not captured are released to the interior of the BOP furnace shop, the large building that houses the furnaces. The uncaptured particulate emissions that do not settle out within the furnace shop are emitted to the atmosphere, mainly through the open roof monitor at the peak of the roof on the shop.

The new baghouse control system for charging and tapping will be separate from the existing ESP control system. The effectiveness of the existing local capture hoods for charging will be improved and these hoods will be ducted to the new baghouse. New local capture hoods would be installed specifically for tapping and these hoods will also be ducted to the new baghouse. As the new baghouse control system would improve control of charging and tapping emissions of the BOP furnaces, it would improve control of the “secondary emissions” of the furnaces.<sup>2</sup> When the new control system is complete, only the emissions captured by the covers on the BOP furnaces, which control emissions from the refining step in the steel production cycle, will go to the ESP.<sup>3</sup>

For tapping, the baghouse control system will also replace the use of flame suppression. In flame suppression, gas burners are used to reduce generation of particulate by depleting the level of oxygen in air that comes in contact with the molten steel. With the local capture hoods for tapping, the continued use of flame suppression would be unsafe, posing a hazard both to personnel and equipment, as well as being of uncertain effectiveness. This is because the high levels of draft provided by the local capture hoods would interfere with the stability and orientation of the flame, as well as posing risk of flame outs.

The installation of the new baghouse system will also act to improve control of the primary emissions from the BOP furnaces from the refining step. This is because the air flow to the ESP, which would no longer include aspiration air for charging and tapping, would be reduced. This reduction in air flow will improve the control efficiency of the ESP due to the increase in air residence time in the ESP.

The installation of this new baghouse control system is provided for by a Memorandum of Understanding between US Steel and the Illinois EPA (Agreement).<sup>4</sup> US Steel has submitted an application for a construction permit for this new control system, Application 11050006. The Illinois EPA is processing that application in parallel with this application for revisions to Permit 95010001.<sup>5</sup> The Illinois EPA has completed its preliminary review of the construction permit

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<sup>2</sup> Particulate emissions from charging and tapping of BOP furnaces are referred to as “secondary emissions,” as distinguished from the emissions from refining, which are referred to as “primary emissions.”

<sup>3</sup> The draft construction permit for the baghouse system would allow the existing ESP system to be used for control of secondary emissions from the BOP furnaces on a temporary basis. This would accommodate a catastrophic failure of the baghouse, which would take it out of service for an extended period.

<sup>4</sup> 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.

<sup>5</sup> The Illinois EPA previously issued a construction permit for this new baghouse control system on August 31, 2011. However, US Steel challenged the issued permit, filing a Petition for Review with the Pollution Control Board on October 10, 2011. That permit was challenged on both technical and procedural grounds.

In response to this appeal, the Illinois EPA has further considered the application for this project, Application 11050006. The construction permit that the Illinois EPA now plans to issue for the new baghouse system and the administrative procedures that the Illinois EPA would use to process this permit

application for the new baghouse control system and prepared a draft of a construction permit pursuant to that application.

Pursuant to 40 CFR 63.7825(a)(1) of the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF, the particulate emissions of the new baghouse for the BOP furnaces would be subject to a limit for particulate matter (PM) emissions of 0.01 grains per dry standard cubic foot (gr/dscf).<sup>6</sup> A more stringent limit, 0.005 gr/dscf, is set for this new baghouse by the Agreement.<sup>7</sup> Like the limits of this NESHAP, the limit set by the Agreement addresses emissions of filterable particulate matter as would be measured by USEPA Methods 5, 5D or 17. The addition of the baghouse control system would not change other applicable emission standards that currently apply to the BOP furnaces or to the existing ESP under this NESHAP or state rules.<sup>8</sup> In particular, the PM emissions of the existing ESP for the BOP furnaces would continue to be subject to a limit of 0.02 gr/dscf, pursuant to this NESHAP, 40 CFR 63.7825(a)(1).<sup>9</sup> However, Section 2(b)(i) of the Agreement provides that the ESP must meet a more stringent limit, 0.01 gr/dscf.

### **III. Background on Permit 95010001**

In January 1996, National Steel, the former owner of the Granite City Works, was issued Construction Permit/PSD Approval 95010001 for an expansion project. The project involved increases in the production of iron from the two existing blast furnaces at this steel mill and an increase in the production of steel from the two existing BOP furnaces. The permit provided approval to undertake the project pursuant to state laws and rules governing construction and modification for sources of emissions. This permit also provided approval for the project pursuant to the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. This approval was required because the project was determined to be a major modification for emissions of sulfur dioxide (SO<sub>2</sub>) and carbon monoxide (CO), i.e., the potential increases in emissions of these pollutants from the project, as addressed by the permit application, were significant.<sup>10</sup> The project was not a major modification under PSD for other pollutants regulated by PSD because the net increases in emissions of those other pollutants were not significant. For

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are intended to appropriately respond to the issues presented by US Steel in its appeal.

<sup>6</sup> This limit, 0.01 gr/scf, is the standard for PM in Table 2 of 40 CFR 63 Subpart FFFFF for a control device like the planned baghouse, which will be applied solely to “secondary emissions” from BOP furnaces in an existing furnace shop.

<sup>7</sup> This limit, which is provided for by Section 2(c) of the Agreement, is slightly more stringent than the NESHAP standard for a control device for secondary emissions from BOP furnaces at a new furnace shop, 0.0052 grains/dscf.

<sup>8</sup> The BOP furnaces are subject to the following standards pursuant to 40 CFR 63.7825(a)(1): 0.02 gr/dscf for the ESP and 20 percent opacity, 3 minute average, for the furnace shop roof monitor.

The existing ESP is also subject to an operating limit, 10 percent opacity, hourly average, pursuant to 40 CFR 63.7790(b)(3).

The BOP furnaces and the BOF shop are also subject to certain process-specific state emission standards, i.e., 35 IAC 212.446(a) and (c) and 212.458(b)(23).

<sup>9</sup> This is the PM emission limit in Table 2 of 40 CFR 63 Subpart FFFFF for a control device, like this ESP, which is a primary emission control system for existing BOP furnaces with open hood systems.

<sup>10</sup> The PSD rules, at 40 CFR 52.21(b)(23)(i), define significant emission rates for pollutants regulated under these rules. The significant emission rates for SO<sub>2</sub> and CO are 40 and 100 tons/year, respectively.

emissions of PM<sub>10</sub>, this project was also not a major modification under Illinois' rules for Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203, because the net increase in PM<sub>10</sub> emissions was not significant.<sup>11</sup>

Because the nonapplicability of PSD and MSSCAM for this project depended on the permitted emissions of various operations at the mill, the construction permit for the project set limits on emissions of relevant pollutants from the various operations affected by the project.<sup>12</sup> For the BOP furnaces, limits were set for emissions of particulate matter (PM) and particulate matter<sub>10</sub> (PM<sub>10</sub>), as well as certain other pollutants. These limits were accompanied by detailed requirements related to the operation of the BOP furnaces and the existing ESP control system. The purpose of these detailed requirements was to ensure proper operation as was believed to be necessary for the PM and PM<sub>10</sub> emissions of the furnaces to comply with the limits that had been established. For example, use of flame suppression was required for control of emissions of tapping. Default values were established for the "minimum set points" or minimum air flow to the ESP when a single BOP furnace was in operation and when both furnaces were in operation. The detailed operational requirements established for the BOP furnaces were also accompanied by compliance procedures, i.e., requirements for emission testing, operational monitoring and recordkeeping that were intended to provide verification of compliance with the substantive operational requirement.

The detailed operational requirements for the BOP furnaces were generally based on the physical configuration of and other circumstances of the furnaces at the time that the construction permit was issued. Only minor consideration was given to accommodating future changes in the configuration and circumstances of the furnaces. In this regard, while Condition 12(c) of the construction permit did contemplate the establishment of alternative set points for the ESP control system in the future, it did not identify the administrative procedure by which such alternative set points would be approved by the Illinois EPA. The construction permit did not provide for other changes to the detailed operational requirements for the BOP furnaces to address future circumstances.

#### **IV. Proposed Revisions to Permit 95010001**

To accommodate the emission reduction project for particulate emissions that US Steel is now planning for the two BOP furnaces, US Steel has applied for revisions to Permit 95010001. The requested revisions to this permit would not affect the emission standards and emission limits that currently apply to US Steel's BOP furnaces. The revisions to this existing construction permit would generally involve removing operational requirements that are already outdated or would become outdated or infeasible with the new baghouse control system. Actual revisions to the permit would provide certainty about the requirements that will apply to the BOP furnaces with

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<sup>11</sup> In 1996, the Granite City area was designated nonattainment for PM<sub>10</sub> air quality. Accordingly, given nonattainment status for PM<sub>10</sub>, PSD was not applicable to the project for PM<sub>10</sub> emissions as a matter of rule. Instead, for PM<sub>10</sub>, applicability of Illinois' rules for "Nonattainment New Source Review," i.e., Major Stationary Sources Construction and Modification (MSSCAM), 35 IAC Part 203, had to be and were addressed. The project was not a major modification for PM<sub>10</sub>, with a net increase in PM<sub>10</sub> emissions that was less than 15 tons/year.

<sup>12</sup> The construction permit also set production limits for the mill, including limits on the production of iron by the blast furnaces and the production of steel by the BOP furnaces.

this new control system. In the absence of such revisions, questions and disagreements could occur in the future about which operational requirements for these furnaces in this permit should be considered outdated, either at present or later after emissions begin to be controlled with the new baghouse control system. Actual revisions to the construction permit should eliminate any question as to whether any operational requirements of this permit are still applicable for the BOP furnaces.<sup>13</sup>

Most importantly, the revisions to Permit 95010001 would remove certain operational requirements for the BOP furnaces that would no longer be appropriate with the planned project. For example, the current CAAPP permit contains limits originating from Permit 95010001 for the minimum air flows to the ESP during charging and tapping of the BOP furnaces. It also does not allow for the charging of hot metal to one furnace and initial part of tapping in the other furnace to occur at the same time. These requirements would no longer be relevant when charging and tapping emissions are controlled with the new baghouse system, rather than the existing ESP system. This is because the ESP would not be controlling these emissions. The new baghouse system will also be designed with sufficient capacity to control charging of one furnace and simultaneous tapping of the other. It is reasonable for Permit 95010001 to be revised as it would provide further clarity and certainty on operational requirements that would no longer apply when the new baghouse system begins controlling emissions of the BOP furnaces.

The revisions to the existing construction permit would also remove operational requirements for the BOP furnaces that have been made obsolete by new regulatory requirements that apply to the furnaces. In 2003, USEPA adopted new rules for BOP furnaces, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF. This NESHAP establishes operational requirements for capture systems and control devices for secondary emissions from BOP furnaces. From a technical perspective, certain operational requirements of the NESHAP, while similar to those of the construction permit, better address proper operation of emission control systems. As related to capture of secondary emissions, the NESHAP addresses the operation of the capture hoods for secondary emissions and the air flow entering the control devices, rather than the aggregate flow of gas at the stack of the particulate control device. The NESHAP also provides appropriate flexibility for changes to operating parameter limits, both up or down, as a consequence of additional performance tests, which may address physical or operational changes to the BOFs or their associated control systems. In addition, the NESHAP reflects a better approach to other operational requirements, as it places the burden for establishing the specific measures that will be implemented to ensure proper operation of the capture systems and control devices for BOP furnaces on the source, rather

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<sup>13</sup> While US Steel indicated in its initial application for a construction permit for the emission reduction project, Application 11050006, that it was requesting a revision to Permit 95010001, it did not submit a separate application for a revision to this permit. US Steel has now submitted a separate application for revision of Permit 95010001. This application is being processed separately from the construction permit application for the emission reduction project. This will enable the revision to Permit 95010001 to be subject to the administrative procedures that commonly apply to processing of PSD permits, 40 CFR Part 124, Procedures for Decisionmaking, rather than the administrative procedures that apply for a construction permit that is being subjected to integrated processing. Handling of the revision to Permit 95010001 in this way should eliminate any doubt that the outdated provisions of the PSD approval are no longer applicable.

than on the permitting authority.<sup>14</sup>

Finally, the revisions to the existing construction permit would accommodate an approach to future permitting of the BOP furnaces that would be consistent with permitting under Title V of the Clean Air Act and Illinois' CAAPP program, as they require that a CAAPP permit provide for Periodic Monitoring for the various units at a source. This requirement for Periodic Monitoring provides for regular review and appropriate refinement and evolution of the operational requirements for the BOP furnaces as part of the periodic renewal of the CAAPP permit for the Granite City Works. In this light, certain operational requirements established by the Permit 95010001 are now generally considered to be inappropriate as they address matters that should be dealt with in the CAAPP permit as an aspect of Periodic Monitoring. Moreover, operational requirement established by Permit 95010001 should not act as an impediment to future improvements in control of emissions of the BOP furnaces, of which the planned emission reduction project should only be considered one example. Rather emission reduction projects for the BOP furnaces should be able to be approved by the processing of appropriate permits for such projects (either construction permits or revisions to the CAAPP permit for the mill) without having to separately revise this historical construction permit to address its operational requirements.

In this regard, it should also be noted that many of the requirements that are proposed to be removed from Construction Permit 95010001 are included in the current CAAPP permit for the Granite City Works.<sup>15</sup> The planned removal of these requirements from this construction permit, as is proposed, will not act to terminate the effectiveness of those parallel requirements in the CAAPP permit. A separate revision to the CAAPP permit is needed to terminate the parallel requirements in the CAAPP permit. For this purpose, the Illinois EPA plans to authorize the related revisions to provisions of the CAAPP permit as part of the issuance of a construction permit for the new

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<sup>14</sup> In the case of the BOP furnaces at the Granite City Works, a further concern is posed by the similarity of certain operational requirements of the NESHAP, 40 CFR 63 Subpart FFFFF, and certain operational requirements of Permit 95010001. The similarity of these operational requirements would act to make implementation and oversight of the parallel requirements of Permit 95010001 more difficult and resource intensive. To the extent that the operational requirements of this NESHAP serve to address and satisfy relevant compliance concerns for these furnaces, that is, proper operation of their capture systems and control devices, it is preferable for only the operational requirements of the NESHAP to be applicable, rather than the requirements of both the NESHAP and Permit 95010001. Permit-based operational requirements should only be imposed for these furnaces as necessary to address particular aspects of compliance that are not adequately addressed by the NESHAP.

<sup>15</sup> Certain requirements of Construction Permit 95010001 have been incorporated into the CAAPP permit for the Granite City Works. This is because this construction permit was issued pursuant to Title I of the Clean Air (as well as state authority under the Environmental Protection Act). Accordingly, during the processing of the CAAPP application for the Granite City Works, the Illinois EPA reviewed the conditions of Construction Permit 95010001 to identify requirements that should be considered applicable requirements. Certain requirements, which were considered to be relevant to the ongoing operation of the Granite City Works, were copied and included in the CAAPP permit. Other requirements, which were considered to be patently obsolete or otherwise inappropriate for inclusion in the CAAPP permit, were not transferred into the CAAPP permit. USEPA discusses this aspect of the processing of CAAPP applications in its "White Paper for Streamlined Development of Part 70 Permit Applications," USEPA, Office of Air Quality Planning and Standards, July 10, 1995.

baghouse control system.<sup>16</sup>

## **VI. Draft of Revised Permit 95010001**

The Illinois EPA has prepared a draft of the revised Permit 95010001 that it would propose to issue to accommodate the planned emission reduction project. A detailed discussion of the various changes that would be made to the construction permit is provided in Attachment 1 of this Project Summary. The planned revisions to the permit are broadly focused on facilitating the new baghouse control system that is planned for the BOP furnaces, as well as other future projects that would act to reduce emissions of the furnaces. The planned revisions would not affect applicable emission standards or emission limits set for the BOP furnaces.

Since the bulk of the revisions to the permit would involve removal of conditions from the permit that are now out-dated, a version of the draft permit that shows the planned changes is provided as Attachment 2 of this project summary. This attachment is a “marked up” or “tracked changes” version of the historic permit showing planned changes to accommodate the planned emission reduction project. Conditions and language that would be removed from the permit are struck out or interlined. Conditions and language in the permit that would not be changed are not marked. Conditions and language that would be added to permit are underlined. Certain additions to the construction permit would be explanatory, as they would indicate where certain conditions have been removed from the permit. These explanatory notes that would be added to the permit are provided within parentheses.

## **VII. Request for Comments**

It is the Illinois EPA's preliminary determination that the application for revisions to Construction Permit/PSD Approval 95010001 meets applicable state and federal air pollution control requirements, subject to the conditions in the draft of the revised construction permit. The Illinois EPA is therefore proposing to issue a revised permit, as requested by US Steel.

Comments are requested on this proposed action and the proposed revisions to this permit, as set forth in the draft permit and as further described in this project summary.

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<sup>16</sup> It is expected that the revision to the CAAPP permit would be authorized as part of the issuance of a construction permit for the new baghouse control system. This is because that permit would be subject to Integrated Processed in accordance with Section 39.5(13)(c)(v) of Illinois' Environmental Protection Act.

**Attachment 1:**

**Summary of Proposed Revisions to Construction Permit 95010001**

<b>Proposed Revisions to Construction Permit 95010001</b>			
<b>Permit Condition</b>	<b>Nature of Change</b>	<b>Description/Explanation</b>	<b>Related Condition in CAAPP Permit</b>
9(a) Opacity Observations for the BOF Shop	Remove	<p>Requirement for observations of opacity of emissions from the BOF shop on at least a weekly basis. This requirement in the construction permit is no longer appropriate because Periodic Monitoring is now required for the opacity of emissions from the BOF shop pursuant to the CAAPP permit for the mill. In this regard, Condition 7.5.8(e)(i) of the current CAAPP permit (planned future Condition 7.5.8-1(a)) requires observations of opacity on five out of seven operating days until the new baghouse control system is in place for tapping emissions from the furnaces. Thereafter, the frequency of observations would be related to the level of opacity observed during preceding opacity observations, with opacity observations required on five of seven operating unless preceding observation show compliance by a clear margin. This is more stringent than Condition 9(a) of the construction permit.</p> <p>More generally, it is now appropriate for requirements for opacity observations for this BOF shop to be set in the CAAPP permit as part of Periodic Monitoring. This provides for regular review and appropriate refinement and evolution of these requirements as part of the processing of CAAPP permits for the source. In addition, as changes to operational may occur in the future besides the planned emission reduction project, such changes should be able to be made during the processing of an appropriate permit for those changes (either a construction permit or the CAAPP permit for the source) without having to separately revise this requirement in the historic construction permit.</p>	7.5.8(e)(i)
9(b) Opacity Observations for the ESP	Remove	<p>Requirement for observations of opacity from the ESP stack by a human observer in the event of an outage of the opacity monitor on the ESP that exceeds two consecutive hours.</p> <p>This requirement in the construction permit is no longer appropriate because Periodic Monitoring is now required for the opacity of emissions from the ESP pursuant to the CAAPP permit. Periodic Monitoring will provide for regular review and appropriate refinement of monitoring requirement for the ESP as part the processing of the CAAPP permits for the mill.</p> <p>This conclusion is not altered by the fact that the relevant Periodic Monitoring provision in the CAAPP permit (Condition 7.5.8(e)(iii)/planned Condition 7.5.8-1(c)) is currently identical to this condition in the construction permit that would be removed. As changes to this requirement for opacity observation may</p>	7.5.8(e)(iii)

		be appropriate in the future, such changes should be able to be made as part of consideration of Periodic Monitoring during the processing of the CAAPP permit without having to also process a revised construction permit to make related changes to that permit. Moreover, because continuous opacity monitoring is now required for the ESP by the NESHAP, an argument could be made that the identical requirement in the CAAPP permit should already be considered inappropriate or unnecessary. This is because it would provide for a departure from the monitoring explicitly required by the NESHAP.	
9(c) Procedures for Opacity Observations	Remove	<p>Provision addressing how opacity is to be determined, specifying that opacity is to be determined by the observation procedures in USEPA Method 9.</p> <p>This requirement in the construction permit is now unnecessary and inaccurate. The procedures by which opacity is to be determined for purposes of various standards for opacity are also specified by those standards. For example, for purposes of the NESHAP, visible observations of opacity from the BOF shop are to be determined by an average of 12 readings, rather than 24 reading, as generally provided for by USEPA Method 9. For the ESP, continuous opacity monitoring is required. Condition 9(c) is misleading as it generally suggests that opacity of emissions shall be determined using the procedures in Method 9. Incidentally, the flaws in this condition of the construction permit have been addressed in the related condition in the current CAAPP permit (Condition 7.5.8(e)(iii)(b)/planned Condition 7.5.8-1(c)(ii)). That condition, specifying that opacity shall be determined by Method 9, only applies to determinations of opacity from the ESP stack by a human observer in the event of an outage of the opacity monitor.</p>	7.5.8(e)(iii)(B)
9(d) Recordkeeping for Opacity Determinations	Remove	<p>Provision requiring recordkeeping for various opacity determinations would be removed.</p> <p>This requirement in the construction permit would become unnecessary and obsolete as it addresses recordkeeping for opacity determination pursuant to Condition 9(a), (b) and (c), requirements that would be removed as discussed above.</p> <p>Moreover, Condition 9(d) is “muddled” as it refers unnecessarily to the applicable opacity standards for openings in the BOF shop and the ESP stack without also clearly identifying the particular standards that apply to these emission points. It could further be interpreted that the condition requires determinations of opacity for the ESP stack on a three-minute average basis, whereas the ESP stack is subject to 35 IAC 212.123, which limits opacity on a 6-minute average basis..</p>	
10 and Attachment A General Operating Procedures for the BOF	Remove	<p>Requirement to follow certain operating procedures and requirements for the BOFs and the existing ESP control system, as detailed in Attachment A of the construction permit.</p> <p>This requirement in the construction permit is now unnecessary and inaccurate. First, the NESHAP now generally requires operation of the BOFs in accordance with good air control practice. (See 40 CFR 63.6(e) (1)(i) and 63.7800(a).) 40 CFR 63.7800(b) further requires that US Steel prepare and implement a written operation and maintenance plan for the BOFs. As these obligations are now clearly placed on the source, detailed requirements for proper operation of the BOFs and ESP system should not be “predetermined” by the terms of a construction permit. Second, as Attachment A of the construction permit sets out detailed requirements, it will become outdated and obsolete as appropriate operating</p>	-

		<p>procedures for the BOF evolve and improve over time. The planned emission reduction project is simply another such change that has made the detailed operational requirements in Attachment A of the construction permit outdated. Moreover, as certain changes to the operational requirements for the BOFs may be appropriate in the future, such changes should be able to be made during the processing of the CAAPP permit without having to also act to revise the related requirements in the construction permit. Incidentally, this requirement of the construction permit was not incorporated into the CAAPP permit. As such, this proposed revision to the construction permit would serve to confirm that the Illinois EPA has already determined that this requirement is obsolete.</p>	
11 Flame Suppression for Tapping	Remove	<p>Requirement for use of flame suppression for alloy addition.</p> <p>Use of flame suppression would become unnecessary when tapping is controlled by local capture hoods and a baghouse as part of the planned emission reduction project. This new equipment will provide better overall control of particulate emissions from tapping. Continued use of flame suppression would also act to reduce the capture efficiency of the new hoods. This is because the volume of a gas expands with temperature. Continued use of flame suppression would increase the temperature of the air in the area in which tapping occurs, acting to reduce the amount of air actually drawn in by the new capture hoods. Continued use of flame suppression would also pose a physical threat to the new capture system due to the higher temperature that would result and increased carryover of sparks into the ductwork.</p> <p>As a more general matter, an explicit requirement for use of flame suppression is not needed in the construction permit. First, the BOFs must be operated to comply with operating parameter limits pursuant to the NESHAP. As the performance tests that set such limits are conducted with use of flame suppression, this emission control measure is appropriately considered an element of the operating parameter limit. This would not be the case only if a performance test showed compliance without use of flame suppression. Second, as other changes to control measures for tapping could occur in the future besides the planned emission reduction project, such changes should be able to be made during the processing of an appropriate permit for those changes (either a construction permit or the CAAPP permit) without having to separately revise this requirement in the historic construction permit.</p>	7.5.5-3(a)(ii)
12(a), (b)(i) and (c) Requirements for Minimum Set Points	Remove	<p>Specific set points for the ESP (i.e., minimum numerical requirements for the exhaust gas flow rate at the stack of the ESP) during different portions of the steel production cycle would be removed.</p> <p>When the new baghouse control system begins operating, these requirements would become outdated. The requirements that apply for tapping and charging or overlapping operation would cease to be relevant when tapping and charging are not controlled by the ESP. The requirement for refining when only a single furnace is operating would also cease to be relevant. When the new baghouse control system begins operation, the only gas flow from the ESP will be from the covers on the hoods and air flow associated with the refining step, without leakage from the charging hoods and associated ducts.</p> <p>Incidentally, the construction permit contemplated future changes to set points. Condition 12(c) allowed for the establishment of lower set points, requiring use of less aspiration air, based on a demonstration</p>	7.5.6(h)(i) & (ii) and 7.5.5-3(b)(i)

		<p>that a better level of control would occur. It also provided that the established set points would not apply during testing that was conducted for the purposes of revising set points. However, it did not address how such revised set point were to be approved or address future circumstances in which set points for certain modes of operation would no longer be appropriate.</p> <p>More generally, the existing requirements are made obsolete by the operating parameter limits for capture systems for the BOPFs that are established under the NESHAP, 40 CFR 63.7790(b)(1), 63.7800, 63.7824 and 63.7830(a)(3). These operating parameter limits more directly address operation of capture systems on BOPFs than the requirements that would be removed. This is because they address the operation of the capture hoods for secondary emissions and the air flow entering the control devices, rather than the aggregate flow of gas at the stack. The NESHAP also provides appropriate flexibility for changes to operating parameter limits, both up or down, as a consequence of additional performance tests, which may address physical or operational changes to the BOPFs or their associated control systems. The installation of the new baghouse control system is only an example of such a change under the NESHAP, which will trigger a requirement to conduct additional performance testing to establish new operating parameter limit for both the new and enhanced capture systems for charging and tapping and the existing covers on the BOF vessels.</p>	
<p>12(b)“(iii)” Requirements for Staggered Operation</p>	<p>Remove</p>	<p>Operational requirements related to staggering of the oxygen blowing of the BOPFs, the charging of hot metal and alloy addition during tapping would be removed.</p> <p>This change would be made because the new baghouse control system will be designed with sufficient capacity to simultaneously control charging of one BOF and tapping of the other. Accordingly, staggering of these operational steps by the BOFs will no longer be necessary for the BOFs to comply with applicable emission standards.</p> <p>More generally, the existing requirements for staggered operation of the BOFs are made obsolete by the operational requirements for the BOFs under the NESHAP, 40 CFR 63.7790(b)(1), 63.7800, 63.7824 and 63.7830(a)(3). The NESHAP directly requires that the BOFs be operated in a manner that is consistent with that during a performance test in which compliance with applicable emission standards has been shown. As such, the NESHAP would preclude overlap of different steps in the operation of the two BOFs if performance testing has not demonstrated the ability to comply when such steps overlapped. As such, only the most basic restriction on overlapping operation of the BOFs would be maintained, consistent with the construction permit for the baghouse control system, which does not allow simultaneous oxygen blowing of both vessels unless approved by a separate permit. This approach recognizes the current capacity of the control system for oxygen blowing (refining), which is currently insufficient for the oxygen blowing of both furnace vessels simultaneously, while also providing for possible improvements to the control system in the future..</p> <p>Lastly, the operating parameter limits under the NESHAP more directly address operation of capture systems for secondary emissions from BOPFs than the requirements that would be removed. As related</p>	<p>7.5.5-3(a)(i)</p>

		to the manner of operation, the NESHAP addresses the operation of the capture hoods for secondary emissions and the air flow entering the control devices, rather than the aggregate flow of gas at the stack of the particulate control device. The NESHAP also provides appropriate flexibility for changes to operating parameter limits, both up or down, as a consequence of additional performance tests, which may address physical or operational changes to the BOFs or their associated control systems. The installation of the new baghouse control system is such a change under the NESHAP, which will trigger a requirement to conduct further performance testing to establish new operating parameter limits for the new and enhanced capture systems for charging and tapping.	
12(d) and (f) Requirements for Monitoring of ESP Stack Gas Flow Rate	Remove	Requirements for operational monitoring for ESP stack flow rate. This change would be made because the underlying requirements for minimum stack gas flow rate would be removed. Monitoring of individual capture systems and the air flow into the ESP would more directly address proper operation of the ESP control system. See also above discussion for Conditions 12(b)“(iii).”	7.5.8(d)(ii) & (iii)
12(e) Recordkeeping for ESP Flow Rate for Charging, Refining and Tapping	Remove	Requirement that records for ESP stack gas flow rate be kept for charging, refining and tapping. This requirement will become obsolete with the baghouse control system because the ESP would no longer be used to control charging and tapping. More generally, it is now appropriate for operational monitoring requirements for the BOFs, including monitoring requirements for the capture systems for the BOFs, to be set in the CAAPP permit as part of Periodic Monitoring. This provides for regular review and appropriate refinement of these requirements as part the processing of CAAPP permits for the source.	7.5.9(b)(vii)
13(a) and (c) Operational Monitoring for Waste Gas Suction for the ESP System	Remove	Requirements for operational monitoring of waste gas suction (i.e., static pressure) in the common ductwork feeding the ESP for charging, refining and tapping during each steel production cycle. This requirement will become obsolete with the baghouse control system. This is because the ESP would no longer be used to control charging and tapping. More generally, operational monitoring requirements for the BOFs, including monitoring related to the capture systems, to be set in the CAAPP permit as part of Periodic Monitoring. This provides for regular review and appropriate refinement of these requirements.	7.5.8(d)(i) & (i)(B)
13(b) Role of the Operational Monitoring for Waste Gas Suction for the ESP	Remove	Provision that the waste gas suction monitor for the ESP will be used to ensure that sufficient draft is maintained in the capture systems on the BOFs so as to maximize capture of emissions. This requirement will become obsolete with the baghouse control system. This is because the ESP would no longer be used to control charging and tapping.	7.5.8(d)(i)(A)
13(d) Operational Monitoring for Static Pressure in the ESP Downcommer Duct	Remove	Requirements for operational monitoring of waste gas suction (i.e., static pressure) in the common ductwork feeding the ESP for charging, refining and tapping during each steel production cycle would be removed. This change would be made because, with the baghouse control system, the ESP would no longer be used to control charging and tapping. In addition, this monitoring requirement is made obsolete by the NESHAP, which now provides a comprehensive approach to operational monitoring for capture system	7.5.8(d)(i)(C)

		for secondary emissions from BOFs.	
14(a and (b) Requirements for Visual Inspections of the Capture Systems in the ESP Control System	Remove	Requirements for regular inspections of capture systems associated with the ESP. This requirement is made obsolete by the work practices required by the NESHAP. Monthly inspection of the equipment that is important to the performance of the total capture system and repairs of defects or deficiency before the next scheduled inspection are now required by 40 CFR 63.7800(b)(1) and 63.7834. In addition, when the new baghouse system begins operation, these requirements would no longer address the existing capture systems for charging.	7.5.8(d)(iv)(A) & (B)
14(c) Requirement for Prompt Repair of Leaks and Other Defects	Remove	Requirement for prompt repair of leaks or areas otherwise noted to be in need of repair. This requirement in the construction permit is now unnecessary. The NESHAP now generally requires maintenance of the BOFs in accordance with good air control practice. (See 40 CFR 63.6(e) (1)(i) and 63.7800(a).) Repairs of defects or deficiency before the next scheduled inspection are now required by 40 CFR 63.7800(b)(1) and 63.7834. This would require that timely maintenance be performed as necessary to maintain compliance.	7.5.8(d)(iv)(C)
15(a) Requirement to Operate, Maintain and Repair the BOF ESP to Comply with the Permit	Remove	Requirement to generally operate, maintain and repair the ESP to comply with this construction permit. This requirement is obsolete as it would inappropriately impose a redundant obligation to comply with other requirements in the construction permit. As those other requirements would be present and applicable, as reflected in an appropriate permit for the Granite City Works, US Steel would already legally be obligated to take necessary actions to comply with those requirements. To the extent that US Steel was generally being required to properly operate and maintain the ESP, that requirement should exist independent of the other conditions of the permit. In this regard, this obligation for good air pollution control practice is now explicitly required by the NESHAP.	7.5.5-3(b)(ii)
15(b) Requirement for an Adequate Inventory of Spare Parts	Remove	Requirement to maintain an adequate inventory of spare parts for the ESP. This requirement in the construction permit is now unnecessary. The NESHAP now generally requires maintenance of the BOFs in accordance with good air control practice. (See 40 CFR 63.6(e) (1)(i) and 63.7800(a).) 40 CFR 63.7800(b) further requires that US Steel prepare and implement a written operation and maintenance plan for the BOFs. Moreover, the requirement does not directly address maintenance of the ESP as should facilitate proper operation of the ESP. Rather, a separate requirement would be established related to the ESP that is not directly related to either maintenance or operation of the ESP.	
16 Requirement for Written Operating Procedures for the BOF ESP	Remove	Requirement to maintain written operating procedures. This requirement in the construction permit is now unnecessary. The NESHAP now generally requires operation of the BOFs in accordance with good air control practice with preparation and implementation of a written operation and maintenance plan for the BOFs. (See 40 CFR 63.7800(b).)	
17 Required Recordkeeping for the ESP	Remove	Requirements for keeping certain records related to the BOFs and the existing ESP control system would be removed, including records for: (i) Operating time of the BOFs; (ii) Operating time of the capture systems and certain operating data for these systems; (iii) Operating times of the ESP and certain	7.5.9(b)(i) thru (iv)

		<p>performance data for the ESP; and (iv) Inspection and maintenance records for the existing capture systems and the ESP.</p> <p>The recordkeeping requirement would be removed because they have been replaced by requirements that more directly address proper operation of the ESP, including recordkeeping requirements of the NESHAP. In particular, records for “operating times” of the BOFs, the ESP capture systems and the ESP itself do not directly address lapses in control of particulate emissions, i.e., periods when a BOF operates without proper capture and control of emissions. The NESHAP, 40 CFR 63.7834, includes recordkeeping for preventative maintenance that is performed and corrective actions that are taken.</p>	
18 and Table 2	Revise	<p>A parenthetical phrase would be removed from this condition, which contains permit limits for the emissions of the ESP. The phrase indicates that the emissions of the ESP include emissions from charging, refining and tapping of the BOPF.</p> <p>The phrase would be removed because it would no longer be accurate when charging and tapping emissions are controlled by the new baghouse control system.</p>	-
Note (following Condition 18)	Remove	<p>Explanatory note describing the steel production cycle would be removed.</p> <p>The note would be removed because it is inconsistent with the definition of the steel production cycle in the NESHAP, 40 CFR 63.7852, which indicates that the steel production ends after slag is removed from the BOF vessel, rather than at the end of the tapping process.</p>	-
33(a) Procedures for Opacity Observations	Remove	<p>Provision addressing how opacity is to be determined, specifying that opacity is to be determined by the observation procedures in USEPA Method 9.</p> <p>See discussion for Condition 9(c), which is essentially identical to Condition 33(a).</p>	-
33(b) Requirement for Personnel to Conduct Opacity Observations	Remove	<p>Requirement that the source have “...at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.”</p> <p>This requirement is no longer appropriate because Periodic Monitoring is now required for the opacity of emissions from various operations at the Granite City Works. The Periodic Monitoring established by the CAAPP permit directly addresses the opacity observation that the source must conduct or have conducted. By contrast, this requirement of the construction only indirectly addresses opacity observations, as it deals with the staffing that must be available to conduct such observations. Moreover, as such, it could be construed to provide for a failure to actually conduct opacity observations if US Steel had otherwise met with this requirement related to availability of personnel for such observations.</p> <p>Incidentally, this requirement of the construction permit was not incorporated into the CAAPP permit. As such, this proposed revision to the construction permit would simply confirm that the Illinois EPA has already determined this requirement to be obsolete.</p>	-
37 Coordination with Other Existing Permits	Revise	<p>This condition would be revised to qualify “existing operating permits” as operating permits issued for the Granite City Works as of January 15, 1996.</p> <p>This change would be made so that the issuance of a revised construction permit would not affect the</p>	-

		hierarchy of permits for the source based on their chronology. In particular, the construction permit would only supersede operating permits that were issued before the original issuance of the construction permit and not subsequent operating permits issued for the source, including the CAAPP permits.	
38 Emission Testing	Revise	This condition would be revised with the addition of a note, which would be explanatory in nature, at the end of the condition. The note would explain that the issuance of the revised permit does not require that the emission testing, as addressed by this condition, be repeated. The specified emission testing was to. Accompany initial operation of the expansion abd has already been conducted.	
39 Requirement for Reporting of Deviations	Remove	Requirement for reporting deviations from the construction permit. This requirement is obsolete because reporting of deviations is now a routine element of CAAPP permits, including the CAAPP permit for the Granite City Works.	-

## ATTACHMENT 2

### Mark-Up Showing Planned Changes to Permit 95010001

217/782-2113

CONSTRUCTION PERMIT/PSD APPROVAL  
REVISED

PERMITTEE

U.S. Steel Granite City  
Attn: ~~Larry Siebenberger~~ Bryan Kresak, Environmental Director  
Route 203 and 20th Street  
Granite City, Illinois 62040

Application No.: 95010001                      I.D. No.: 119813AAI  
Applicant's Designation: Date Orig. Issued/Received: January 25, 1995/6  
Subject: Production Increase  
Date Revision Request: May 30, 2012  
Date Revision Issued: ~~DRAFT June 25, 2002~~  
Location: Southeastern Granite City

Permit is hereby granted to the above-designated Permittee for an increase in the allowable production rate of iron (from 2,372,500 to 3,165,000 net tons per year) and steel (from 2,774,000 to 3,580,000 net tons per year) as described in the above-referenced application. This permit is subject to standard conditions attached hereto and the following special conditions:

FINDINGS

- 1a. Various changes have been made to the provisions of this permit for the Basic Oxygen Furnaces (BOFs), at the request of the Permittee, so that the permit will accommodate an emission reduction project that is planned for particulate emissions from the BOFs. In particular, the revised permit does not include requirements for the operation of these BOFs and the existing electrostatic precipitator (ESP) control system that would be inconsistent with the use of a separate control system with a baghouse for secondary emissions of the BOFs, as is now planned (see Construction Permit Application 11050006). Removed requirements were also generally inconsistent with requirements under the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Manufacturing Facilities, 40 CFR 63 Subpart FFFFF. They were also inconsistent with Periodic Monitoring for the BOFs, as established under the Clean Air Act Permit Program (CAAPP) permit for the source (see CAAPP Permit 96030056).

- b. Prior to issuance of this revised permit, a draft of ~~theis~~ revised permit underwent ~~has undergone~~ a public notice and comment period, including ~~and~~ a public hearing ~~was held~~.

BLAST FURNACE OPERATIONS

- 2a. Total combined production of hot metal (a.k.a., iron) from blast furnaces A and B shall not exceed 9,849 net tons per day, averaged over any calendar month, and;
- b. Total combined production of hot metal from blast furnaces A and B shall not exceed 3,165,000 net tons per year.
- 3a. Particulate emissions from the blast furnace casthouse baghouse and iron spout baghouse shall not exceed 0.010 gr/dscf, pursuant to 35 Ill. Adm. Code 212.445(b)(1).
- b. The opacity of emissions from the blast furnace casthouse baghouse and the iron spout baghouse shall not exceed 10% on a 6 minute rolling average basis, pursuant to 35 Ill. Adm. Code 212.445(b)(1).
- 4a. Emissions of particulate matter from any opening in the blast furnace casthouse shall not exceed 20% opacity on a 6-minute rolling average basis beginning from initiation of the opening of the tap hole up to the point where iron and slag stops flowing in the troughs, pursuant to 35 Ill. Adm. Code 212.445(a)(2).
5. Emissions from Blast Furnace operations shall not exceed the limits in attached Tables 1 and 5.

BASIC OXYGEN FURNACE SHOP

- 6a. Total combined production of liquid steel from the Basic Oxygen Furnaces (BOF's) shall not exceed 11,000 net tons per day, averaged over any calendar month, and;
- b. Total combined production of liquid steel from the BOF's shall not exceed 3,580,000 net tons per year.
7. The emissions of PM-10 from the BOF ~~ESP~~ stack for the total of all BOF processes (i.e., operations from the beginning of the charging process through the end of the tapping process) shall not exceed 60.0 lbs/hr and 0.225 lbs per ton of steel in process, pursuant to 35 Ill. Adm. Code 212.458(b)(23).
8. Visible emissions from any opening in the BOF shop (e.g., roof monitor) shall not exceed 20% on a 3 minute rolling average basis, pursuant to 35 IAC 212.446(c).

(Former Conditions 9 through 17 have been removed from this revised permit.)

- ~~9a. The Permittee shall determine the opacity from the openings BOF shop on at least a weekly basis. Observations shall be conducted for at least an hour or the entire BOF cycle, whichever is greater.~~
- ~~b. The Permittee shall determine the opacity from the BOF ESP stack for at least one hour on any normal work day (i.e., Monday through Friday) that the continuous opacity monitor on the BOF ESP stack has an outage that exceeds two consecutive hours and is still down. The readings shall commence as soon as possible after the opacity monitor has been down for two consecutive hours. If meteorological conditions or lack of visibility preclude these observations from being conducted, then this shall be noted in the log book.~~
- ~~c. The opacity shall be determined in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9 including the requirement that readings be taken by a certified observer.~~
- ~~d. These determinations shall be recorded in a log book, which at a minimum shall include the date and time of observations, name and title of observer, individual opacity readings, calculated opacity so as to determine compliance with Section 212.123, and calculated opacity relative to 20% opacity on a three minute rolling average basis.~~
- ~~10. The Permittee shall follow the BOF operating procedures and requirements specified in attachment A. These requirements are designed to ensure proper operation of the BOF control system. These procedures shall be posted in the BOF pulpit (a.k.a., control room).~~
- ~~11. Flame suppression shall be used and maintained during the entire tapping process.~~
- ~~12a. The stack gas pulpit set point of the BOF ESP control system shall be set in accordance with the following, so as to establish sufficient particulate matter capture efficiency of the charging and primary hoods:~~
  - ~~i. Set point requirements while only a single BOF vessel is in operation:~~
    - ~~A. Minimum set point during charging process: 550,000 cfm;~~
    - ~~B. Minimum set point during refining process: 650,000 cfm;~~
    - ~~C. Minimum set point during tapping process: 200,000 cfm (until one minute after completing alloy addition);~~
  - ~~b. i. During dual operation of BOF vessels (a.k.a., overlapping BOF operation) the minimum set point shall be 700,000 cfm.~~
  - ~~iii. Overlapping operations of the BOF vessels is allowed under the following conditions:~~

- ~~A. The hot metal charge of the second vessel shall be initiated and completed during the time between completion of the blow and start of tap on the first vessel while sufficient draft at the ESP capture system is established and maintained for both vessels.~~
  - ~~B. The charge and/or blow on one vessel shall not begin until sufficient draft has been established at the associated ESP capture system (a.k.a., doghouse) and the alloy addition at the vessel tapping has been completed for a least 1 minute.~~
  - ~~C. Sufficient draft at the ESP capture system of the vessel being tapped shall be maintained for at least 1 minute after alloy addition has been completed. After such period, the capture system draft may be transferred over to the other vessel in order to satisfy condition (A) above.~~
  - ~~D. Only overlapping of the hot metal charge of the second vessel after the end of blow and prior to onset of tap of the first vessel and overlapping of tapping of the first vessel, after alloy addition, and the hot metal charge and/or blow on the second vessel are allowed.~~
  - ~~E. Condition B and C above shall be part of the Standard Operating Procedure (SOP) of the BOF vessels.~~
- ~~c. The BOF capture system shall be operated at the above minimum set points until and unless the Agency approves a lower minimum set point based on a demonstration that a better level of particulate matter control will occur, except for purposes of emissions testing as related to the set point.~~
  - ~~d. The Permittee shall calibrate, operate, and maintain a continuous strip chart recorder of the ESP stack gas flow rate as measured by the stack gas flow meter during ESP use.~~
  - ~~e. The Permittee shall record for each steel production cycle the various stack gas flow rates for each process (i.e., for each charge, each refine, each tap) of each steel production cycle. That is, the Permittee shall be able to distinguish the measured flow rate of stack gas during each production cycle.~~
  - ~~f. The stack gas flow meter shall be calibrated on at least a quarterly basis.~~
- ~~13a. The Permittee shall operate and maintain the waste gas suction monitor system that continually measures and records for each process (i.e., for each charge, each refine, each tap) of each steel production cycle the static pressure in the main downcommer duct of the ESP emissions capture and transport system.~~

- ~~b. The waste gas suction monitoring system shall be used as a mechanism to ensure sufficient draft is maintained in the emissions capture hoods and transport ducts so as to maximize emissions capture and transport and minimize uncaptured emissions and emission leaks.~~
- ~~c. The monitoring system shall be operated and maintained to ensure accurate and useful data.~~
- ~~d. The Permittee shall continuously record the static pressure in the main downcomer duct of the ESP emissions capture and transport system.~~
- 14a. The Permittee shall visually inspect at least monthly all visible BOF vessel enclosures, hooding and ducts used to capture and transport emissions for the BOF ESP control system.
- ~~b. A log shall maintained of these inspections which includes observations of the physical appearance of the capture system and any noted deficiencies (e.g., the presence of any holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion).~~
- ~~c. Any leaks or areas otherwise noted to be in need of repair, shall be repaired as soon as practicable.~~
- 15a. The Permittee shall operate, maintain, and repair the BOF ESP in a manner that assures compliance with the conditions of this permit.
- ~~b. An adequate inventory of spare parts for the BOF ESP shall be maintained.~~
- 16. Written operating procedures for the BOF ESP shall be maintained and updated describing proper normal process and equipment operating parameters, monitoring and instrumentation for measuring control equipment operating parameters, control equipment inspection and maintenance practices, and the availability of spare parts from inventory, local suppliers and other sources.
- 17. The Permittee shall keep operating records, a maintenance log, and inspection log for the BOF ESP and associated control systems which includes the following:
  - ~~a. Operating time of the BOF;~~
  - ~~b. Operating time of the capture systems and performance parameters, including air flow and fan amperage through the fan motors, gas temperature at inlet to ESP, damper settings, and steam injection rate;~~
  - ~~e. Operating time of the ESP and performance parameters, including voltage and amperage of each transformer/rectifier set, number of sections in use;~~

~~d. All routine and nonroutine maintenance performed, including dates and duration of outages, inspection schedule and findings, leaks detected, repair actions, and replacements.~~

18. Emissions from the BOF Shop shall not exceed the limits in attached Tables 2 and 5.

~~Note: For purposes of this permit, a BOF cycle is defined as the period from the beginning of the charging process through the end of the tapping process. The cycle is comprised of three main processes which are charging, refining, and tapping.~~

#### CONTINUOUS CASTING OPERATIONS

19. The continuous casting operations shall comply with 35 Ill. Adm. Code 212.450 and 212.458(b)(8).

20. Emissions from the continuous casting operations shall not exceed the limits in Tables 3 and 5.

#### FUEL COMBUSTION

21. Total fuel usage for blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares shall not exceed the following limits:

- a. Natural Gas usage: 225 million ft<sup>3</sup> per month and 1,346 million ft<sup>3</sup> per year;
- b. Blast Furnace Gas (BFG) usage: 30,800 million ft<sup>3</sup> per month and 185,030 million ft<sup>3</sup> per year;
- c. Fuel Oil usage: 60 thousand gallons per month and 365 thousand gallons per year.

22. Emissions from the fuel combustion units listed above shall not exceed the limits in Tables 4 and 5.

#### ON-SITE FUGITIVE DUST CONTROL

(Refer to Attachment B for a table which summarizes the required on-site fugitive dust roadway control measures and maps indicating the referred to road segments)

23. The Permittee shall immediately initiate and maintain the on-site fugitive dust control measures specified in this permit so as eliminate dust spillage on in-plant and out-of-plant roadways.

24a. The Permittee shall sweep or flush at least every day the paved access area below the BOF ESP where ESP dust collection bags are used, stored and transported.

- b. The Permittee shall implement a housekeeping program for the non-roadway areas below and around the BOF ESP. This program shall, at a minimum, contain the following:
  - i. The ground and other accessible areas where dust may gather shall be swept or cleaned at least every day;
  - ii. Cleaning shall be performed in such a manner as to minimize the escape of dust into the atmosphere;
  - iii. Dust collection bags shall be inspected at least daily for rips, tears, or insecure connection to the discharge chutes of the ESP hoppers;
  - iv. Dust collection bags shall be inspected after removal from, and connection to, the discharge chutes of the ESP hoppers;
  - v. Ripped or torn bags shall be taken out of service and transported as soon as practicable in a covered truck.
- 25. Fugitive emissions of particulate matter from any roadway or parking area shall not exceed an opacity of 5%, pursuant to 35 Ill. Adm. code 212.316(e)(1).
- 26a. UNPAVED ROADS: On unpaved roads that are part of normal traffic patterns as identified in attachment B (including roads B, C, E, N, F-F, and CS(2)) the Permittee shall apply a chemical dust suppressant at least three times a month, with the following exceptions:
  - i. Road segment G-G, which shall be sprayed at least quarterly;
  - ii. Road segments P, V, Z, D-D, E-E, and H, which shall be sprayed at least 4 times per month until paving is completed. Paving shall be completed on these roads no later than July 31, 1996;
  - iii. Road segment L, which shall be sprayed at least 4 times per month.
- b. All other unpaved roads shall be treated as necessary.
- c. Applications of suppressant may be less frequent than specified above if weather conditions, i.e., precipitation or temperature, interfere with the schedule for spraying, provided each such instance shall be recorded in accordance with the daily records for on-site fugitive dust control required by this permit.
- 27a. PAVED ROADWAYS AND AREAS: Paved roadways and areas shall be maintained in good condition.
- b. On paved roadways and other areas, the Permittee shall sweep or flush as follows:

- i. Road segments D, K, M, F, G, J, R, and O shall be swept or flushed at least daily;
  - ii. Road segments P, V, W, X, Z, D-D, E-E, and CS(1) shall be swept or flushed at least five days per week;
  - iii. Road segments S and T shall be swept or flushed at least every other day;
  - iv. Road segments A and H shall be swept or flushed at least once per month;
  - v. All gate areas leading from the Steelworks area shall be swept or flushed at least daily;
  - vi. All gate areas leading from the iron making area shall be swept or flushed at least five times per week.
28. The above on-site dust control measures shall be conducted to maximize their effectiveness by performing said measures when the roads or areas are not normally obstructed by parked vehicles and by preferentially using filter sweeping (e.g., Enviro-Whirl sweeper) for the gate areas, the roads and areas surrounding the BOF and BOF ESP, and other key areas.
29. The Permittee shall maintain daily records relative to the on-site fugitive dust control program which includes the following information as a minimum:
- a. The date (and time for the gate areas) each road or area was treated;
  - b. The manner in which the road or area was treated (i.e., filter sweep, conventional sweep, suppressant spray or flush);
  - c. Detailed information for use of dust suppressant, including but not limited to the application rate, dilution ratio, type of suppressant used, and the number of gallons of suppressant applied;
  - d. Observations, if any, concerning the condition of the roadway, e.g., presence of parked vehicles, detection of potholes;
  - e. The amount of precipitation and temperature recorded for each day, and if determination was made to suspend application of suppressant, include name and title of person who made determination to suspend application and explanation;
  - f. Any and all suspensions or deviations from the designated control procedures, with date, description, and explanation for suspension of application.

OFF-SITE FUGITIVE DUST CONTROL

30. The Permittee or the Permittee's Agent shall sweep or flush the following Granite City street road areas:
- a. At least weekly, the quarter mile segment of Madison Avenue in front of the 16th street gate (i.e., 1/8 of a mile in either direction);
  - b. At least weekly, segment of 20th street between Lee and Quincy roads;
  - c. At least monthly, segment of 20th street between Madison and Route 203 (a.k.a. Edwardsville Road).

PM-10 CONTINGENCY MEASURES

31. The Permittee shall comply with the additional control measures (e.g., PM-10 contingency plan) required by 35 Ill Adm. Code Part 212 Subpart U.

COMPLIANCE DETERMINATIONS

- 32a. Compliance with the daily limits of this permit shall be determined from a monthly total of the relevant daily data divided by the number of days in the month.
- b. Compliance with the monthly limits of this permit (e.g., fuel usage) shall be determined by direct comparison of monthly data to the applicable limit.
  - c.
    - i. Compliance with the annual limits of this permit shall be determined based on a calendar year.
    - ii.
      - A. Compliance with the production limits in conditions 2(b) and 6(b) shall also be determined on a month by month basis by showing that the actual production of iron and steel from the plant did not exceed the scheduled rate of production for a month given in the most recent production schedule provided to the Agency that shows compliance with the following requirements.
      - B. If no production schedule is submitted to the Agency by the Permittee for a particular year, the scheduled monthly production of iron and steel shall be set at one twelfth of the annual production limits in conditions 2(b) and 6(b).
      - C.
        - 1. The Permittee may submit a schedule for iron and steel production for each month of the calendar year. Such schedule shall provide the scheduled monthly iron and steel production for each month and the total of such scheduled production shall not exceed the annual

production limits in conditions 2(b) and 6(b). This schedule shall be submitted each year no later than December 15th of the preceding year.

2. During the course of the year, the Permittee may submit a revised production schedule which accounts for actual production levels which were below that scheduled for the previous months, provided that in no case shall the scheduled production for prior months in such a revised schedule be lowered to less than actual production levels or raised. Such revised schedule shall be submitted to the Agency no later than 15 days after the first day of the month for which scheduled production has been raised. Such schedule shall be accompanied by data on actual production in preceding months.

(Former Condition 33 has been removed from this revised permit.)

~~33a. Compliance with opacity limits and measurements of opacity shall be made by opacity readings taken in accordance with the observation procedures set out in 40 CFR Part 60, Appendix A, Method 9.~~

~~b. The Permittee shall have at least two employees or agents experienced in making opacity readings to the extent that it is reasonably possible to do so, who shall be able to make the opacity readings required by this permit.~~

34a. Blast furnace hot metal production shall be measured at the BOF hot metal transfer station, and adjusted by documented slag and iron losses.

b. BOF liquid steel production shall be initially measured by a scale equipped crane and adjusted based upon documented steel production analysis of the continuous casters.

c. BFG usage shall be calculated based on the total BFG produced per net ton hot metal (NTHM) derived by the following formula and adjusted per analysis of documented BFG consumptions:

$$\text{mmft}^3 \text{ BFG per month} = \frac{(4.585277 \text{ NTHM/day} + 498.191)}{80} \times \left( \begin{array}{c} \text{Number of} \\ \text{days in} \\ \text{that month.} \end{array} \right)$$

d. Natural gas usage shall be determined by metered volumes.

e. Fuel oil usage shall be determined by tank height differentials.

RECORD KEEPING

35. The Permittee shall keep records of the following items and such other items which may be appropriate to allow the Agency to review compliance:
- a. Blast Furnace hot metal production (total combined daily, monthly and annual in tons), including documentation on iron and slag losses;
  - b. BOF liquid steel production (total combined daily, monthly and annual in tons), including documentation on adjustments made due to production analysis and losses;
  - c. Fuel usage as follows; Usage of natural gas and BFG (total combined million ft<sup>3</sup> per month and year, each) and fuel oil (total combined gallons/month and year) for the blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.
36. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Agency and USEPA upon request. Any records retained in a computer shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Agency request for records during the course of a source inspection.

TESTING

37. The special conditions of this permit supplement the special conditions of any existing operating permits for this source as of January 15, 1996 and supersede such conditions in cases where a conflict exists.
- 38a. The following tests shall be performed by no later than August 6, 1997 to demonstrate compliance with the conditions of this permit.
- i. Fuel Combustion Units testing: The emissions of particulate matter from boiler #12 while burning blast furnace gas shall be measured. This test shall be designed to verify compliance with the requirements of this permit and the emission factor used (i.e., 2.9 lbs particulate emitted per mmcf BFG burned);
  - b. The test shall be performed by an approved independent testing service during conditions which are representative of maximum emissions and at the maximum production rates allowed, or as close to such rates as reasonable if the Permittee demonstrates to the Agency prior to testing that testing at such production rates within the time constraints of an Agency request to test is not practicable.
  - c. i. The following methods and procedures shall be used for the testing, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A for USEPA test methods;

Location of sample points	USEPA Method 1
Gas flow and velocity	USEPA Method 2
Particulate Matter	USEPA Method 5

- ii. All particulate measured shall be considered PM-10 unless emissions are tested by an appropriate USEPA test method for measurement of PM-10, as specified in 35 Ill. Adm. Code 212.110(e).
- d. At least 30 days prior to the actual date of testing, a written test plan shall be submitted to the Agency for review and approval. This plan shall describe the specific procedures for testing, including as a minimum:
  - i. The persons who will be performing sampling and analysis and their experience with similar tests;
  - ii. The specific conditions under which testing will be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which operating parameters for the source and the emissions capture and control system will be determined;
  - iii. The specific determinations of emissions and operation which are intended to be made, including sampling and monitoring locations;
  - iv. The test methods which will be used, with the specific analysis methods;
  - v. Any proposed use of an alternative test method, with detailed justification;
  - vii. The format and content of the Source Test Report.
- e. The Agency shall be notified before these tests to enable the Agency to observe these tests. Notification for the expected date of testing shall be submitted a minimum of thirty (30) days prior to the expected date. Notification of the actual and expected time of testing shall be submitted a minimum of five (5) working days prior to the actual date of the test. The Agency may at its discretion accept notifications with shorter advance notice provided that the Agency will not accept such notifications if it interferes with the Agency's ability to observe testing.
- f. The Final Report of these tests shall include as a minimum:
  - i. A tabular summary of results which includes:
    - process weight rate and/or fuel usage rate
    - production rate
    - allowable emission limit
    - measured emission rate

- determined emission factor
  - compliance demonstrated - Yes/No
  - any other pertinent information
- ii. Description of test methods and procedures used, including description of sampling train, analysis equipment, and test schedule;
- iii. Detailed description of test conditions, including,
- pertinent process information (e.g. fuel or raw material consumption)
  - control equipment information, i.e. equipment condition and operating parameters during testing;
- iv. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration;
- g. Copies of the Final Report for these tests shall be submitted to the Agency within 14 days after the test results are compiled and finalized.
- h. Submittals of information shall be made as follows:
- i. Notice of Test - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section;
  - ii. Final Report - one copy to Source Emission Test Specialist, one copy to Regional Office, and one copy to Permit Section.

Pertinent Addresses are:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
9511 West Harrison  
Des Plaines, Illinois 60016

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Regional Office  
2009 Mall Street  
Collinsville, Illinois 62234

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Attn: Permit Section  
P.O. Box 19506  
Springfield, Illinois 62794-9506

(Condition 38 required emission testing following the initial operation of the source with the expansion that has already been conducted by the Permittee. This revised permit does not require that this testing be repeated.)

REPORTING

(Former Condition 39 has been removed in this revised permit.)

~~39. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Agency's Compliance Unit in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the record keeping requirements, a copy of the relevant records, and a description of the exceedance or violation, cause of the exceedance, and efforts to reduce emissions and future occurrences. This report shall be sent to:~~

~~Illinois EPA  
Bureau of Air  
Compliance Section (#40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276~~

40. The Permittee shall submit the following additional information from the prior calendar year with the Annual Emissions Report, due May 1st of each year:

- a. Iron and steel production (tons/month and tons/yr, each);
- b. Natural gas and BFG usage (mmft<sup>3</sup>/month and mmft<sup>3</sup>/yr, each);
- c. Fuel oil usage (thousand gallons/month and thousand gallons/yr, for each type of oil).

APPLICABILITY OF MAJOR SOURCE RULES

41a. As a consequence of the above conditions, this permit is issued based upon the following changes in emissions, as further described in Table 6, accompanying increased production as allowed by this permit:

- i. The increases in emissions of lead and VOM are not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration;
- ii. The increase in emissions of NO<sub>x</sub> are being accompanied by contemporaneous emission decreases provided by the shutdown of equipment and operations such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

- iii. The increase in emissions of PM and PM-10 are being accompanied by contemporaneous emission decreases provided by additional road dust control and BOF capture and control such that the net emissions change is not significant under 35 Ill. Adm. Code Part 203 or 40 CFR 52.21 - Prevention of Significant Deterioration.

Also, the Permittee has agreed to provide further additional dust control consisting of the sweeping of Granite City public streets and housekeeping measures in the area below and surrounding the BOF ESP. Attachment C is a listing of the emission reductions provided by these control measures.

- b. The increases in emissions of SO<sub>2</sub> and CO are significant under 40 CFR 52.21 - Prevention of Significant Deterioration (PSD). Accordingly, the project is considered a major modification and must comply with the requirements of PSD. These requirements include a demonstration of best available control requirements for affected SO<sub>2</sub> and CO emission units, an analysis of air quality impacts, an analysis of the impacts of the project on visibility, vegetation's and soils, and the application and proposed permit must undergo a public participation. The Agency has determined that these additional requirements have been met.
- c. The changes in emissions pertinent to this project are summarized as follows:

Units = tons/year

- Emission increases which could occur from the project:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
51.6	- 52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
15	25	40	40	100	40	0.6

Explanatory Note:

- PM = particulate matter = particulate;
- PM-10 = particulate matter less than or equal to 10 micrometers in size;
- SO<sub>2</sub> = sulfur dioxide;
- NO<sub>x</sub> = nitrogen oxides;
- VOM = volatile organic material;
- CO = carbon monoxide;
- mm = million;
- gr/dscf = grains per dry standard cubic foot;
- acfm = actual cubic feet per minute;
- mmcf = million cubic feet;
- Mgal = thousands of gallons.

If you have any questions on this permit, please call Kevin Smith at 217/782-21137048.

Edwin C. Bakowski~~Donald E. Sutton~~, P.E.      Date Signed: \_\_\_\_\_  
Manager, Permit Section  
Division of Air Pollution Control

DES:KLS:jar

cc: IEPA, FOS Region 3

TABLE 1

BLAST FURNACE OPERATIONS

Maximum Hot Metal Production = 3,165,000 net tons per year

1. Casthouse Baghouse (furnace tapping)- captured emissions ducted to baghouse, uncaptured emissions emitted through roof, other openings, etc.

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0703	111.19
PM-10	0.0703	111.19
SO <sub>2</sub>	0.2006	422.0
NO <sub>x</sub>	0.0144	22.79
VOM	0.0946	149.68

2. Blast Furnace - uncaptured fugitives

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.031	49.06
PM-10	0.0155	24.53
SO <sub>2</sub>	0.0104	21.94
NO <sub>x</sub>	0.0007	1.14
VOM	0.0047	7.42

3. Blast Furnace Charging  
Maximum pellets charged = 4,308,581 tons/yr

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0024	5.17
PM-10	0.0024	5.17

4. Slag Pits

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00417	6.60
PM-10	0.00417	6.60
SO <sub>2</sub>	0.0100	15.83

TABLE 1 (cont.)

5. Iron Spout Baghouse- captured emissions controlled by iron spout baghouse.

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.02548	40.32
PM-10	0.02548	40.32
SO <sub>2</sub>	0.0073	13.89

6. Iron Pellet Screen  
Maximum pellets charged = 4,308,581 tons/yr

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00279	6.01
PM-10	0.00279	6.01

TABLE 2BOF SHOP

Maximum Liquid Steel Production = 3,580,000 net tons per year

1. BOF ESP Stack (~~charge, refine, tap~~)

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.16	262.80
PM-10	0.16	262.80
NO <sub>x</sub>	0.0389	69.63
VOM	0.0060	10.74
CO	8.993	16,097.47
Lead	0.1934 lbs/hr	1.26 tons/yr

2. BOF Roof Monitor

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0987	176.71
PM-10	0.06614	118.40
Lead	0.0129 lbs/hr	0.08 tons/yr

3. Desulfurization and Reladling - Hot Metal Transfer

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.03721	58.88
PM-10	0.03721	58.88
VOM	0.0010	1.58
Lead	0.0133 lbs/hr	0.09 tons/yr

4. BOF Additive System (i.e., fluxes) with Baghouse, a.k.a., BOF hopper baghouse

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00032	0.57
PM-10	0.00032	0.57

TABLE 2 (cont.)

5. Flux conveyor & transfer pits, bin floor

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0016	2.86
PM-10	0.0016	2.86

6. Hot metal charging ladle slag skimmer

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0050	7.94
PM-10	0.0050	7.94

TABLE 3CONTINUOUS CASTING OPERATIONS

Maximum Liquid Steel Throughput = 3,580,000 net tons per year

## 1. Argon Stirring Station and Material Handling Tripper (Ladle Metallurgy)

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00715	12.80
PM-10	0.00715	12.80

## 2. Deslagging Station and Material HS.

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00355	6.35
PM-10	0.00355	6.35

## 3. Caster Molds - Casting

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.006	10.74
PM-10	0.006	10.74
NO <sub>x</sub>	0.050	89.50

## 4. Casters Spray Chambers

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00852	15.25
PM-10	0.00852	15.25

## 5. Slab Cut-off

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.0071	12.71
PM-10	0.0071	12.71

TABLE 3 (cont.)

6. Slab Ripping

<u>Pollutant</u>	<u>Emission Factor (Lbs/Ton)</u>	<u>Maximum Emissions (Tons/Yr)</u>
PM	0.00722	12.92
PM-10	0.00722	12.92

TABLE 4

CERTAIN FUEL COMBUSTION UNITS

1. 10 boilers (#'s 1 - 10)
2. 2 boilers (#'s 11 - 12)
3. Blast Furnace Stoves A & B.
4. BFG Flares
5. Ladle Drying Preheaters (5 heaters).

Total combined fuel usage from affected units (i.e., Boilers, BF stoves, BF Flares, ladle drying preheaters)

	Maximum Usage (mmft <sup>3</sup> /Yr)
NATURAL Gas (Total)	1,346
BFG	185,030
Fuel Oil	365 thousand gallons/yr

1. Natural Gas

<u>Pollutant</u>		<u>Emission Factor (Lbs/mmcf)</u>		<u>Maximum Emissions (Tons/Yr)</u>
PM	5.1		3.43	
PM-10	5.1		3.43	
SO <sub>2</sub>		0.6		0.40
NO <sub>x</sub>		306	205.94	
VOM	2.8		1.88	
CO		40		26.92

2. BFG

<u>Pollutant</u>		<u>Emission Factor (Lbs/mmcf)</u>		<u>Maximum Emissions (Tons/Yr)</u>
PM	2.9		268.29	
PM-10	2.9		268.29	
SO <sub>2</sub>		6.65		615.22
NO <sub>x</sub>		5.28		488.48
CO		13.7		1,267.46

TABLE 4 (cont.)

3. Fuel Oil

<u>Pollutant</u>	<u>Emission Factor (Lbs/Mgal)</u>		<u>Maximum Emissions (Tons/Yr)</u>
PM	9.72	1.77	
PM-10	9.72	1.77	
SO <sub>2</sub>	141.3		25.79
NO <sub>x</sub>	55		10.04
VOM	0.28	0.05	
CO	5.0	0.91	
Lead	0.336	0.06 (waste oil)	

TABLE 5LIMITS ON EMISSIONS FROM MAJOR PROCESSES AND ACTIVITIES

Units = tons/year

	<u>PM</u>	<u>PM-10</u>	<u>SO<sub>2</sub></u>	<u>NO<sub>x</sub></u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
Blast Furnace Operations	218	194	474	24	157	--	--
BOF Shop	510	451	--	70	12	16,097	1.43
Continuous Casting Operations	71	71	--	90	--	--	--
Certain Fuel Combustion Units <sup>A</sup>	274	274	641	706	2	1,295	0.06
Roadways	27	27	--	--	--	--	--
Material Handling	2	2	--	--	--	--	--
	<u>PM</u>	<u>PM-10</u>	<u>SO<sub>2</sub></u>	<u>NO<sub>x</sub></u>	<u>VOM</u>	<u>CO</u>	<u>Lead</u>
TOTAL	1,102	1,019	1,115	890	171	17,392	1.49

<sup>A</sup> Blast furnace stoves (A and B), boiler house boilers (1-10), blast furnace boilers (11 and 12), ladle drying preheaters and blast furnace gas flares.

TABLE 6

EMISSIONS SUMMARY

Units = tons/year

- Emission increases which could occur from the project:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
51.6	-52.0	238.8	476.0	5,685	59.3	0.54

- Creditable contemporaneous actual emission decreases:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
58.0	58.0	226.5	0.38	23.31	32.8	0.0

- Other contemporaneous emission increases:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
20.7	20.3	26.0	0.25	11.8	1.6	0.0

- Net emission changes:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
+14.3	-89.2	+38.3	+475.9	+5,673	+28.1	+0.54

- Significant Levels:

<u>PM-10</u>	<u>PM</u>	<u>NO<sub>x</sub></u>	<u>SO<sub>2</sub></u>	<u>CO</u>	<u>VOM</u>	<u>Lead</u>
15	25	40	40	100	40	0.6

ATTACHMENT A

(Former Attachment A has been removed in this revised permit.)

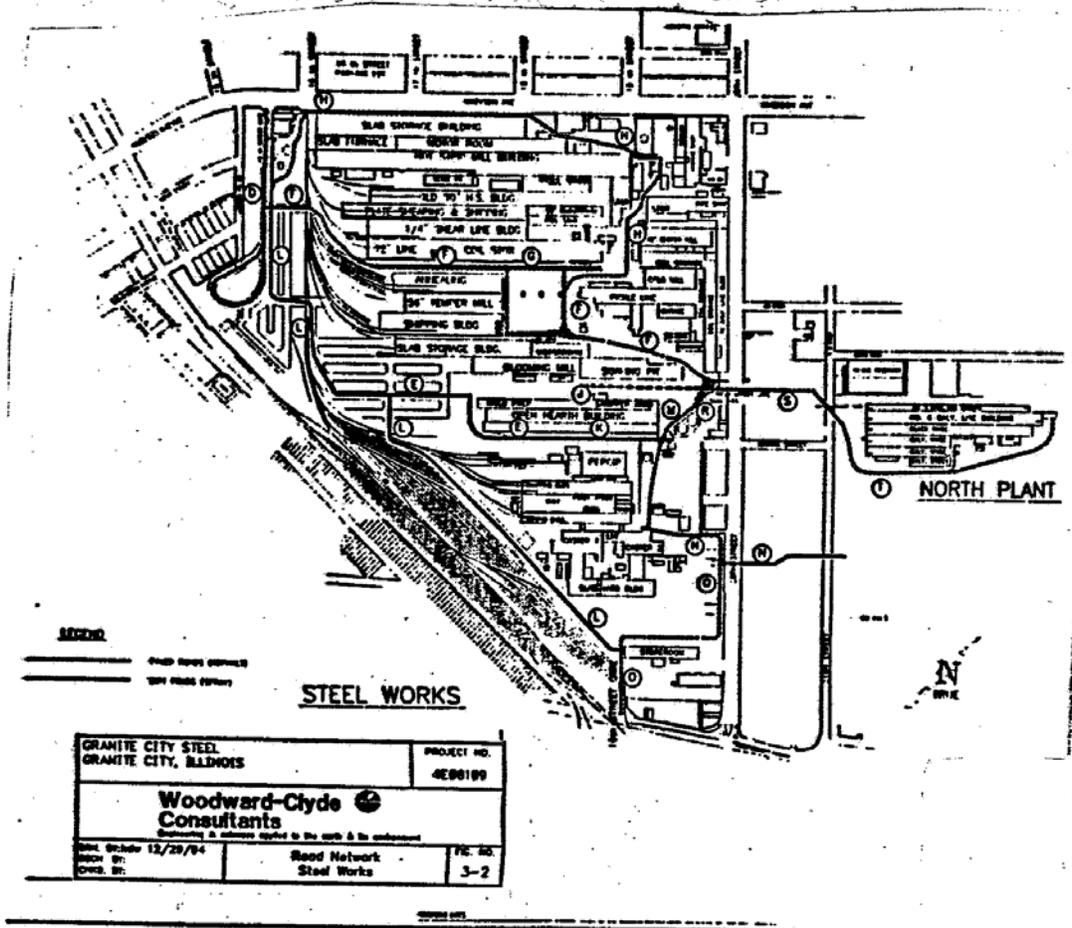
~~PROCEDURES TO ENSURE PROPER OPERATION  
OF BOF ESP CONTROL SYSTEM~~

- ~~1. The emissions control operator shall:
  - ~~a. Check on a regular basis and report to the emissions control foreman or melter:
    - ~~i. Any ESP fields down;~~
    - ~~ii. Any ESP fields in which the meter readings are showing no current or a fault;~~~~
  - ~~b. Check on a regular basis that doors on all hopper screws are closed;~~
  - ~~c. Inspect on a regular basis the fans and motors for unusual sounds and/or visual problems. Any abnormalities will be immediately reported to the melter or maintenance foreman for investigation.~~~~
- ~~2. The melter shall:
  - ~~a. Check on a regular basis and report to the emissions control foreman or the area electrician any fields which the pulpit precipitator field short indicators shows as having a short and is able to reset;~~
  - ~~b. Check on a regular basis and report to the emissions control foreman or the maintenance foreman any draft or fan problems;~~
  - ~~c. Check the ESP stack opacity monitor on a regular basis and initiate the following in the event that the stack opacity level, as determined by the opacity monitor, exceeds 30% opacity on a six minute average:
    - ~~i. Check the pulpit indicators for proper operation of the steam and spray water system. Report any problems to emission control foreman or maintenance foreman;~~
    - ~~ii. Check the stack gas pulpit set point for proper setting;~~
    - ~~iii. Call the emissions control operator who shall perform the following steps:
      - ~~A. Check the AVC operation and power level. Report any problems to electrical maintenance foreman or area electrician;~~
      - ~~B. Check to ensure that doors on all hopper screws are closed;~~~~~~
  - ~~d. Check oxygen blow rates and adjust, if necessary;~~
  - ~~e. Check hot metal chemistry;~~~~

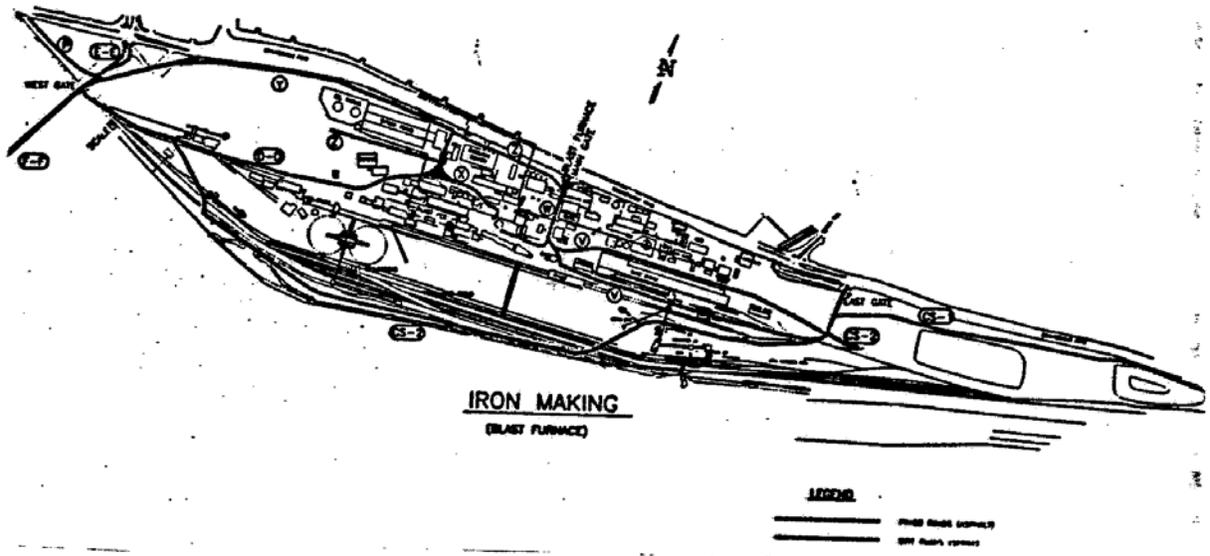
- ~~f. A log shall be maintained of the above checks and any actions taken as a result.~~
- ~~3. The emission control foreman shall:~~
- ~~a. Check on a regular basis the opacity monitor exceedances and trends. The control specialist shall be contacted to correct any problems;~~
  - ~~b. Check on a regular basis the draft rate set points;~~
  - ~~c. Check on a regular basis primary and secondary damper settings;~~
  - ~~d. Check on a regular basis ESP operation, including the following:~~
    - ~~i. Fields down;~~
    - ~~ii. Fields indicating shorts and unable to reset;~~
    - ~~iii. Hopper screw doors are closed;~~
  - ~~e. Check on a regular basis blow rates;~~
  - ~~f. Check on a regular basis spray water system operation;~~
  - ~~g. Check on a regular basis steam injection rate;~~
  - ~~h. Contact the area manager regarding electrical maintenance and to schedule the ESP repair work;~~
  - ~~i. Contact the area manager for mechanical maintenance to schedule the isolation of the ESP channel by closing the inlet and outlet gates of that chamber and opening the top hatches for entry into the chamber;~~
  - ~~j. Notify the emissions control operator and melter when isolation work begins;~~
  - ~~k. A log shall be maintained of the above checks and any actions taken as a result.~~
- ~~4. The crane operator shall use the following procedures, as appropriate, to minimize emissions and maximize emissions capture by the hoods:~~
- ~~a. Use controlled pouring of the hot metal into the BOF vessel;~~
  - ~~b. Use careful positioning of the hot metal ladle with respect to the hood face and furnace mouth;~~
  - ~~c. Use the most beneficial furnace tilt angle;~~
  - ~~d. These procedures shall be posted in the crane operator booth.~~

**ATTACHMENT B**

**ON-SITE FUGITIVE DUST ROADWAY CONTROL MEASURES AND  
MAPS SHOWING THE ROAD SEGMENTS**

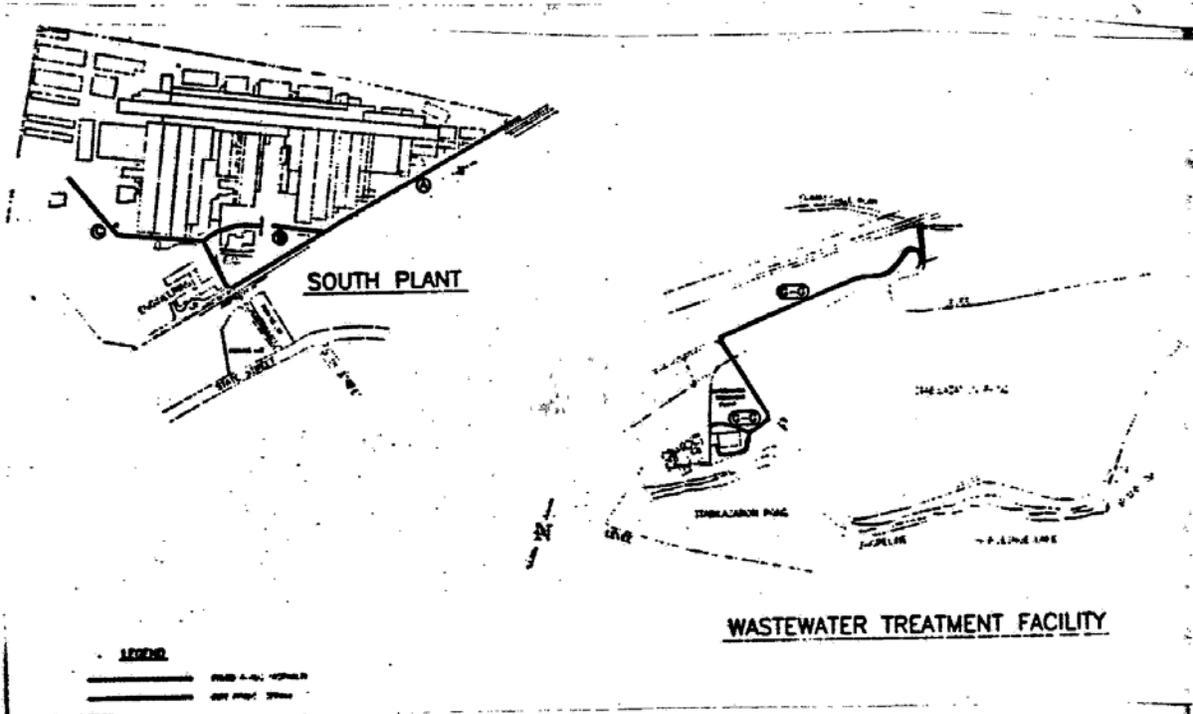


**ATTACHMENT B (cont.)**



GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4E86189
<b>Woodward-Clyde</b>  <b>Consultants</b> <small>Consultants &amp; Engineers Limited to the North &amp; South</small>		
DATE: 07/26/04 ISSUED BY: CHECK BY:	Road Network Iron Making Area	FILE NO. 3-3

**ATTACHMENT B (cont.)**



GRANITE CITY STEEL GRANITE CITY, ILLINOIS		PROJECT NO. 4E88189
<b>Woodward-Clyde</b>  <b>Consultants</b> <small>Engineering &amp; services needed to the steel &amp; its downstream</small>		
DATE: 12/29/94	Road Network	FIG. NO.
DRAWN BY:	South Plant & WWTP	3-4

ATTACHMENT C

CONTEMPORANEOUS REDUCTIONS IN THE  
EMISSIONS OF PM-10

- Historic roadway emissions of 428 tons/yr, minus future potential roadway emissions of 27 tons/yr, equals a resulting reduction in roadway emissions of 401 tons/yr
- Historic material handling emissions of 17 tons/yr minus future potential material handling emissions of 2 tons/yr, equals a resulting reduction in material handling emissions of 15 tons/yr.
- Emission reductions resulting from the sweeping of city streets = 52 tons/yr\*
- Emission reductions resulting from sweeping and housekeeping of areas below and around BOF ESP = 12 tons/yr\*

Total reductions in the emissions of PM-10 as a result of the additional dust control measures required by Illinois' SIP and the special conditions of this permit = 480 tons/yr

- \* These are considered reasonable estimates of reductions and are subject to change upon further investigation of the actual reductions which will occur as a result of the control measures required by this permit.