

AIR EMISSION PERMIT NO. 13700005- 005

IS ISSUED TO

United States Steel Corporation

Minnesota Ore Operations – Minntac Facility
8819 Old Highway 169
Mountain Iron, St. Louis County, MN 55768

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date
PSD Permit for Modifications at the Minntac Facility (prepared by ENSR) Subsequent updates, supplements, and revisions to the above permit application	09/30/1991

This permit authorizes the Permittee to operate and construct the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Federal; Pt 70/NSR

Approval Date: December 16, 2008

Issue Date: December 22, 2008

Expiration: February 26, 2008
All Title I Conditions do not expire.

Ann M. Foss, Director
Mining Sector
Industrial Division

for Paul Eger
Deputy Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	651-296-6300
Outside Metro Area	1-800-657-3864
TTY	651-282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

Permittee owns and operates a taconite mine and processing facility, known as Minntac, at County Highway 102, on the Mesabi Range north of the City of Mountain Iron, St. Louis County, Minnesota.

Taconite is a rock bearing from 15 to 30 percent magnetic iron particles (magnetite). The iron ore is mined in an open pit, and reduced in size by a series of crushers until it has a powdery consistency. Iron oxide concentrate is separated magnetically, while the remaining portion of the mined ore (tailings) is sent to a tailings disposal basin. Limestone and/or dolomite (fluxstone) and bentonite (binder) are added to the concentrate and the mixture is formed into round “green balls (pellets)” in a balling drum. The green balls are heat hardened in an indurating process (agglomerator or grate-kiln) line, which consists of a traveling grate, a rotary kiln, and a horizontal rotary hearth (commonly called annular cooler). Finished taconite pellets are stored for transport to blast iron furnaces. While the main product of the Minntac facility is fluxed pellets which are used in blast furnaces to make molten iron, other products such as iron ore concentrate, blast furnace trim, and railroad blast are made for special customers.

The Minntac facility was built in three successive stages or steps. The first taconite pellets were produced by the Step I facility in 1967. When Step II (1972) and Step III (1978) were added, the facility’s pellet-making capacity was tripled.

Description of Permit Action 005:

This permit action concerns the indurating process modification (adding auxiliary burners to the traveling grate preheat zone of the indurating furnace at all five lines), which was completed over a period from 1987 to 1989 without first obtaining an air emission permit under the applicable Prevention of Significant Deterioration (PSD; 40 CFR § 52.21) regulations. During this period, Permittee also requested permission to test burn wood and oat hulls in some of these kilns. The MPCA granted the request, and found out later that permanent equipment had been installed in order to burn these fuels. The MPCA alleged that these actions violated the PSD regulations.

As required by the Stipulation Agreement, signed on May 15, 1991, and in order to comply with PSD provisions, an application was submitted for an air emission permit on September 30, 1991. Although included in the original application submittal, Line 2 (Step I) was documented not to be “scheduled for operation in the near future” by Permittee (correspondence, July 30, 1993). With approval from the MPCA, Permittee also installed wet scrubbers on Lines 4 and 5 (operational on February 15 and March 24, 1992, respectively), in order to avoid exceedance in air dispersion modeling analysis for ambient air quality standards for particulates. Wet scrubbers have been designed and installed before initial startup of Lines 6 and 7 in 1978. The first Title V permit, which was issued on February 26, 2003, does not fully address the indurating process modification.

This permit action authorizes the indurating process modification with emission limits for nitrogen oxides (NO_x) (5,000 lb/hr using 24-hr block average and 13,300 ton/yr using 365-day rolling sum – both for all five waste gas stacks combined), carbon monoxide (CO), volatile organic compounds (VOC), and fluoride at Permit Issuance. A lower annual limit take effect for NO_x after February 1, 2010 (7,300 ton/yr). Requirements are set forth to select NO_x emission control technologies, which have been proven for industrial emission units, for pilot testing and full scale demonstration; and to install a successfully demonstrated technology or technologies in all five lines (five waste gas stacks) to substantially reduce NO_x emission by February 1, 2014. The control efficiency goal for the combined application of NO_x control technologies, low NO_x burners to be installed to replace the regular ones at the grate preheat zone, and others potentially to be guided with a Computational Fluid Dynamics (CFD) modeling study is a reduction of at least 70 percent of NO_x emissions from the initial limit of 13,300 ton/yr.

Note that nothing set forth in this permit shall prevent any other applicable requirements from seeking further reduction in NO_x emissions from the indurating process.

Fluoride emission limits are set forth in this permit for all five lines individually as a result of Best Available Control Technology (BACT; 40 CFR § 52.21 (j)(3)) determination for fluoride emission (wet scrubbing is BACT). An analysis of recent stack test results was performed to develop these emission limits. Line 3 waste gas stack air pollution control equipment has been upgraded to wet scrubbing, since the previous permit action, 004, which did not lead to issuance of that public noticed draft permit. As a result of this pollution control equipment upgrade, PM and PM₁₀ emission limits at the waste gas stacks, which were “Title I Condition: Used to restrict PTEs and the review under 40 CFR § 52.21; Minn. R. 7007.0100, subp. 25(C)” in PER 004, are not needed in PER 005. The alternative demonstration of compliance to Total Particulate Matter Limit, provided for GP 009 through PER 004 per Minn. R. 7011.0610, subp. 1(A)(1), is no longer needed and thus removed from this permit.

BACT emission limits for CO and VOC and the requirements for installation and operation of NO_x continuous emission monitoring systems (CEMS) are similar to those in the PER 004 draft permit. CEMS now are required in this permit for compliance with emission limits of sulfur dioxide (SO₂), which is not a PSD pollutant for the indurating process modification.

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-1**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item:**Total Facility**

What to do	Why to do it
A. OPERATIONAL REQUIREMENTS	hdr
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and record keeping specified in the control plan. The plan will include a statement of objectives, listing and daily observation of major fugitive emission sources, operating and control measures, dust suppressant application description, corrective actions, training and records. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Comply with the O & M Plan: Follow the actions and recordkeeping specified in the O & M plan. The plan may be amended by the Commissioners written approval.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
B. PERFORMANCE TESTING REQUIREMENTS	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
C. MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit - Subject Item: Total Facility, Section F; Subject Items MR1 through MR5).	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 180 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Debugging, Troubleshooting, and Establishment of Parameter Ranges: Complete within 180 days of installation or of completion of needed repair of all monitoring equipment, including the air pollution control equipment operating at the time of Permit Issuance.	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-2**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

<p>Visible Emissions Check: The Permittee shall check visible emissions from the 26 selected stacks/vents, which are specified else where in this permit, once daily when in operation during daylight hours. A form meeting the requirements of Appendix B shall be used to indicate whether process or control equipment requires attention. In the event the Permittee makes a finding that attention is required, the Permittee shall investigate the process and control equipment performance and implement appropriate corrective action, if necessary.</p> <p>Upon approval of the O&M Plan, the Permittee shall check visible emissions from {SVs} once daily when in operation during daylight hours. The Permittee shall use the visible emissions checklists in the O&M Plan as a means to indicate when appropriate corrective actions in the O&M Plan should be taken.</p>	Minn. R. 7007.0800, subp. 4(D); Minn. R. 7007.0800, subp. 14; Minn. R. 7007.0800, subp. 16(J)
<p>Fugitive Dust Observations: Prior to the approval of the Fugitive Control Plan, the Permittee shall observe fugitive dust sources {FS} once daily during daylight hours. In the event the Permittee makes a finding that attention to fugitive dust sources is required, the Permittee shall investigate the fugitive dust sources and implement corrective action, if necessary. For unpaved haul roads, the Permittee may use the existing Unpaved Haul Road Fugitive Control Plan and may submit this plan for approval as part of the overall fugitive control plan.</p> <p>Upon approval of the Fugitive Control Plan, the Permittee shall observe fugitive dust sources {FS} once daily during daylight hours in accordance with the approved plan.</p>	Minn. R. 7007.0800, subp. 4(D); Minn. R. 7007.0800, subp. 14; Minn. R. 7007.0800, subp. 16(J)
<p>Visible Emissions Training: The Permittee shall (1) ensure that one plant employee obtain an initial EPA Method 9 certification and be recertified every three years or (2) employ a similarly certified contractor. This person will train other plant employees to perform the daily visible emissions check as detailed in the O&M Plan and Fugitive Control Plan.</p>	Minn. R. 7007.0800, subp. 4(D); Minn. R. 7007.0800, subp. 14; Minn. R. 7007.0800, subp. 16(J)
D. RECORD KEEPING REQUIREMENTS	hdr
<p>Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007. 1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.</p>	Minn. R. 7007. 0800, subp. 5(B)
<p>Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A). Computerized formats can be used, provided that the Permittee maintains reliable backup for data retrieval.</p>	Minn. R. 7007.0800, subp. 5(C)
<p>Contractors: The Permittee shall retain records on site of all contractors that are allowed on site that include any crushers, screens and conveyors. The Permittee shall also retain records on site of all contractors whose operations would require an Air Emission Permit from the MPCA. The records shall include the contractor's company name, MPCA air emission permit number, short description of activities undertaken by the contractor, estimate of emissions or materials handled and the dates the contractor was on site. The record shall be updated at least monthly.</p> <p>The Permittee shall evaluate if the activities of any contractor required NSR permitting prior to the contractor performing such activities. If a contractor has its own permit, but it is determined that the contractor is under the common control of the taconite plant then the contractor's permit does not shield the taconite plant or the contractor from the NSR & Part 70 modification regulations or enforcement actions.</p>	Minn. R. 7007.0800, subp. 2
E. REPORTING REQUIREMENTS	hdr
<p>Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.</p>	Minn. R. 7019.1000, subp. 1
<p>Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description:</p> <ol style="list-style-type: none"> 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. 	Minn. R. 7019.1000, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-3**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

<p>Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.</p>	Minn. R. 7019.1000, subp. 2
<p>Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.</p>	Minn. R. 7019.1000, subp. 3
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
F. Retroactive PSD Permitting Requirements - Tasks, Reports and CEMS (Table A under Subject Item: MR 001 through MR 005, and Table B have additional CEMS requirements)	hdr
The Permittee shall commission, within 180 days of Permit Issuance, a Computational Fluid Dynamics (CFD) modeling study to investigate potential reductions in indurating NOx formation through process optimization or modification. Additional CFD studies may also be completed as required by selected NOx control technologies.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Notification of Commissioning the CFD Study Including a Work Product Deliverable Schedule: due 15 days after hiring a contractor to complete Computational Fluid Dynamics modeling, as required for the investigation of potential reductions in indurating NOx formation and/or as required by selected NOx control or generation reduction technologies.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Submit: due 365 days after beginning the CFD study, a final report on CFD modeling of indurating NOx formation. CFD modeling will be conducted as required for the investigation of potential reductions in indurating NOx formation and/or as required by selected NOx control or generation reduction technologies. Include model validation, outlook for NOx reduction as predicted with CFD run results, and successful implementations and/or lessons learned in applying CFD findings in the years past, if appropriate.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Install, due before 12/31/2009, Low NOx Burners at the traveling grate preheat zone of Agglomerator Lines 3 through 7. { This is a reminder; the requirement can also be found in GP 009, 010, and 011 in Table A. }	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
<p>The Permittee shall complete engineering analyses, no later than 1/31/2009, on the following NOx emission control technologies, LoTOx, SCR (dirty-side; clean-side, including Regenerative SCR), SNCR, Mobotec, and others as proposed by the Permittee. Due to adverse impact on Class I area visibility, technical feasibility is the only criterion that will be considered in the engineering analyses and selection of technologies to be pilot tested.</p> <p>No later than 2/28/2009, submit an Engineering Analysis Report for NOx control technologies and propose selected NOx control technologies, for MPCA approval, to be pilot tested with a proposed pilot test schedule. In the Engineering Analysis Report, the Permittee shall also identify the corporate relationship, if any, between U.S. Steel and the testing firm that would pilot test a NOx control technology.</p>	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-4**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

<p>The Permittee shall commence pilot testing of selected NOx control technologies, upon receipt of written MPCA approval of the selection and the test schedule and receipt of permit(s) as needed. The Permittee shall collect data to be used for evaluation of control technology success. Pilot tests shall be completed by 12/31/2009, or as outlined in MPCA approved schedule, whichever is later.</p> <p>MPCA will evaluate the control technology using the following criteria at a minimum:</p> <ol style="list-style-type: none"> 1. technical feasibility or impact to pellet quality; 2. significant NOx reduction; 3. cross media impacts; 4. multi-pollutant co-control benefits; 5. energy efficiency or consumption impact; and 6. economic feasibility. 	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>No more than 60 days after pilot test completion, submit Pilot Test Results of NOx control technologies for MPCA's approval. The Pilot Test Results submittal shall include, at a minimum, a technical description of each control technology tested, and a summary of major physical and chemical data obtained that are important for deciding whether or not the technology should be demonstrated. With the Pilot Test Results, the Permittee shall propose one control technology for full scale demonstration on one Agglomerator line and shall rank the other control technologies that have been pilot tested for potential demonstration.</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>Submittal of Permit Application: due 60 days after receipt of written MPCA approval of NOx emission control pilot testing results, for a major permit amendment to install a control technology at one Agglomerator line for a full scale demonstration.</p> <p>The Permittee shall submit a schedule of equipment installation, anticipated startup, and final reporting of the demonstration within 60 days of receipt of the Permit from the MPCA. { This is a reminder; the requirement can also be found in Table B. }</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>The Permittee shall commence full scale demonstration of the selected NOx control technology at one Agglomerator line, upon receipt of MPCA permit(s). This includes, but is not limited to the following tasks: 1) compiling emission monitoring and stack testing data that were generated before installing the control technology; 2) installing and operating the control technology; 3) monitoring emissions and conducting stack testing with the control technology operating; 4) collect capital and operating cost data. The goal is to have the demonstration completed by 2/1/2011. A goal is a target for the Permittee but is not intended to be an enforceable permit condition.</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>Within 60 days following completion of the full scale demonstration, submit a Full Scale Demonstration Report for MPCA approval. At a minimum, the report shall include a summary of: 1) mass rate (lb/hr) and concentration (ppmv, dry) of NOx, SO2, CO, and mercury entering and exiting each demonstrated control technology; 2) control efficiencies and emission factors in lb/dry, long ton of pellets made and in lb/million Btu total heat input for NOx, SO2, CO, and mercury, based on statistical analyses of hourly continuous emission and process monitoring results and, if necessary, additional stack testing results; and 3) cross-media quantification for scrubbing and/or plant process water.</p> <p>(To be continued in the next box)</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>(Continued from the box above)</p> <p>MPCA will evaluate the full scale technology demonstration using the criteria specified to evaluate the pilot testing at a minimum. The goal is to have NOx control technology installation completed for all operating lines by 2/1/2014, or as outlined in MPCA approved schedule, whichever is later. A goal is a target for the Permittee but is not intended to be an enforceable permit condition.</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>Submittal of Permit Application: due 60 days after receipt of written MPCA approval of the final report on control technology demonstration, for a major permit amendment to install the demonstrated control technology on the remaining four Agglomerator lines.</p> <p>The Permittee shall submit a schedule of equipment installation and anticipated startup of individual lines within 60 days of receipt of the Permit from the MPCA. { This is a reminder; the requirement can also be found in Table B. }</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-5**

12/22/08

Facility Name: US Steel Corp - Minntac

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<p>If the MPCA determines that the demonstrated control technology should not be installed on the remaining lines in operation, the Permittee shall commence demonstration of the next-ranked control technology option that was submitted with the Pilot Test Results and shall submit a Full Scale Demonstration report as required above. The Permittee shall continue this process until either the MPCA approves a control technology for installation on the remaining lines in operation or all of the ranked technology options have been exhausted. If all of the ranked technology options are exhausted and the MPCA has not approved a technology for installation on the remaining lines in operation, the Permittee shall propose a schedule for completion of a Supplemental Engineering Analysis that at a minimum identifies any previously unidentified NOx control technologies, NOx reduction strategies or then current industry practices. (To be continued in the next box)</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>(Continued from the box above) The specific provisions of the Supplemental Engineering Analysis shall be incorporated into the permit through the submission of a major permit amendment.</p> <p>The Supplemental Engineering Analysis shall be submitted to the MPCA no later than 60 days after written notification from the MPCA that none of the pilot tested technologies are approvable for installation on all lines in operation. The Supplemental Engineering Analysis will identify new potentially feasible control technologies, based on previously identified criteria, and propose a schedule, for MPCA approval, of supplemental pilot tests, pilot test reports, installation of technology for a full scale demonstration, demonstration project reports, and full installation of control technology at remaining operating Agglomerator lines.</p> <p>(To be continued in the next box)</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>(Continued from the box above)</p> <p>If the Supplemental Engineering Analysis concludes that no technologies are currently feasible, based on previously identified criteria, and MPCA approves, another Supplemental Engineering Analysis will be submitted by the Permittee within 1095 days of last Supplement Engineering Analysis submittal, with all of the procedures that the MPCA has previously approved, with the exception that the Permittee need not obtain a major permit amendment to implement additional Supplemental Engineering Analyses. The Permittee shall continue to submit Supplemental Engineering Analyses every 1095 days until NOx control technologies have been installed on all operating Agglomerator lines.</p> <p>(To be continued in the next box)</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>(Continued from the box above)</p> <p>If, after initial engineering analyses, pilot testing, demonstration projects, and an initial Supplemental Engineering Analysis, no control technologies are approved for full installation and significant NOx emission reductions have been achieved without full installation of control technologies on all operating Agglomerator lines, the Permittee may submit a request, in the form of a major permit amendment, to cease trials of NOx emissions control technologies.</p> <p>(End of the requirement that takes 4 boxes to hold)</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>If the MPCA approves a demonstrated control technology for installation at the remaining lines in operation, the Permittee shall commence installation upon receipt of MPCA permits(s). If a non-operating line recommences operation, the Permittee shall install the approved NOx control technology before the line resumes operation. Installation includes, but is not limited to: 1) installing and operating the control technology; 2) monitoring emissions and conducting stack testing with the control technology operating and setting emission limits; and 3) collect capital and operating cost data.</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>Within 60 days after completion of full scale installation, submit a Final NOx Reduction Report for MPCA approval to document the NOx reduction process and major findings. At a minimum, the Final Report shall include a summary of: 1) demonstrated control efficiency of the control technology installed at each line and the emission factors (lb/LT pellets; lb/million Btu of total heat input) for each pollutant determined during the full scale demonstration; 2) associated cross-media impacts assessed and mitigation measures; 3) annualized cost of NOx control for the control technology installed (of capital cost for equipment and operation cost) per ton of NOx removed; 4) Low NOx burners, CFD work, the benefit of CEMS application, and other measures taken that contribute to reduction in induration NOx formation.</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>
<p>Emission Monitoring: The owner or operator shall use a CEMS to measure mass emissions of NOx and SO2 from each of the following stacks: SV 103 (GP 009), SV 118 & SV 127 (GP 010), and SV 144 & SV 151 (GP 011). Monitoring requirements are located under the associated subject items (MR 001 through MR 005).</p>	<p>Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1006</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-6**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1090.
Monitoring Data: All data points collected by a CEMS shall be used to calculate individual hourly emission averages unless another applicable requirement or compliance document requires more frequent averaging. Each hourly average starts at the beginning of the hour and ends at the beginning of the following hour. In order for an hour of data to be considered, it must contain the following minimum number of data points: a) four data points, equally spaced, if the emission unit operated during the entire hour; b) two data points, at least 15 minutes apart, during periods of monitor calibration or routine maintenance; and c) one data point, if the emission unit operated for 15 minutes or less during the hour.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1160, subp. 1 and 2.
QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 2.
CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily according to the procedures listed in Minn. R. 7017.1170, subp. 3 and 40 CFR 60.13(d)(1) for each pollutant concentration, each diluent monitor, and for each monitor range. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR 60, Appendix B. If no span value is specified in the applicable requirement or in a compliance document, the Permittee shall use a span value equivalent to 1.5 times the emission limit. 40 CFR 60, Appendix F, shall be used to determine out-of-control periods for CEMS. Follow the procedures in 40 CFR 60, Appendix F.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 3.
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS Relative Accuracy Test Audit (RATA).	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1180, subp. 2.
G. MISCELLANEOUS	hdr
Extension Requests: Except for Title I Conditions, the Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-7**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 001 Pre-1977 heating boilers

Associated Items: EU 001 SI 104 MMBtu Heating Boiler
 EU 002 SI 104 MMBtu Heating Boiler
 EU 003 SII 125 MMBtu Heating Boiler
 EU 010 24.6 MMBtu Boiler
 EU 011 24.6 MMBtu Boiler
 SV 001 SI 104 MMBtu Boiler
 SV 002 SI 104 MMBtu Boiler
 SV 003 SII 125 MMBtu Boiler
 SV 010 24.6 MMBtu Boiler
 SV 011 24.6 MMBtu Boiler

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 2.0 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity , except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
B. OPERATION REQUIREMENTS	hdr
The Permittee shall record the amount of fuel oil burned each month. The Permittee shall obtain and maintain a fuel supplier certification of the sulfur weight percent for each shipment of fuel oil. If supplier certification is not available, the Permittee shall sample the fuel oil from multiple the tank(s) after each delivery but not more than once each calendar week when multiple deliveries are made. The Permittee shall analyze the oil sample to determine sulfur content of the fuel oil in ppercent by weight in accordance with the current ASTM method. The Permittee shall maintain records of the fuel deliveries and results of the fuel analysis.	Minn. R. 7007.0800, subp. 4(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-8**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 002 Post-1977 heating boilers**Associated Items:** EU 004 SIII 153 MMBtu Heating Boiler

EU 005 SIII 153 MMBtu Heating Boiler

SV 004 SIII 153 MMBtu Boiler

SV 005 SIII 153 MMBtu Boiler

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0515, subp. 1
Sulfur Dioxide: less than or equal to 2.0 lbs/million Btu heat input	Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20 percent opacity , except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0515, subp. 2
B. OPERATION REQUIREMENTS	hdr
The Permittee shall record the amount of fuel oil burned each month. The Permittee shall obtain and maintain a fuel supplier certification of the sulfur weight percent for each shipment of fuel oil. If supplier certification is not available, the Permittee shall sample the fuel oil from multiple the tank(s) after each delivery but not more than once each calendar week when multiple deliveries are made. The Permittee shall analyze the oil sample to determine sulfur content of the fuel oil in ppercent by weight in accordance with the current ASTM method. The Permittee shall maintain records of the fuel deliveries and results of the fuel analysis.	Minn. R. 7007.0800, subp. 4(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-9**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 003 Panfeeders (Pre-1969)**Associated Items:** CE 004 Wet Scrubber-High Efficiency w/o Lime

CE 005 Wet Scrubber-High Efficiency w/o Lime

EU 022 Step I Coarse Crusher Pan Feeders

EU 023 Step I Coarse Crusher Pan Feeders

EU 024 Step II Coarse Crusher Pan Feeders

EU 025 Step II Coarse Crusher Pan Feeders

SV 016 Step I Coarse Crusher Pan Feeders

SV 017 Step II Coarse Crusher Pan Feeders

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0710, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency, provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0710, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 02/26/2003 on one stack to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months following Initial Performance Test on one stack that was not tested in the previous 60-month period to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-10**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 004 Zinc furnaces & miscellaneous ovens

Associated Items: EU 028 Zinc Melt Furnace
 EU 031 Zinc Melt Furnace
 EU 032 Zinc Melt Furnace
 EU 142 Zinc Melt Furnace
 EU 143 Zinc Melt Furnace
 EU 389 Electric Shop Curing Oven (new)
 EU 390 Burnout Oven
 SV 019 Zinc Melt Furnace
 SV 020 Zinc Melt Furnace
 SV 086 Zinc Melt Furnace
 SV 189 Electric Shop Curing Oven
 SV 190 Burnout Oven

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Sulfur Dioxide: less than or equal to 2 lbs/million Btu heat input	Minn. R. 7011.0610, subp. 2(B)(1)
Opacity: less than or equal to 20 percent opacity , except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
B. OPERATION REQUIREMENTS	hdr
The Permittee shall record the amount of fuel oil burned each month. The Permittee shall obtain and maintain a fuel supplier certification of the sulfur weight percent for each shipment of fuel oil. If supplier certification is not available, the Permittee shall sample the fuel oil from multiple the tank(s) after each delivery but not more than once each calendar week when multiple deliveries are made. The Permittee shall analyze the oil sample to determine sulfur content of the fuel oil in ppercent by weight in accordance with the current ASTM method. The Permittee shall maintain records of the fuel deliveries and results of the fuel analysis.	Minn. R. 7007.0800, subp. 4(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-11**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 005 Conveyor transfer points (26A-91-I/O-1)**Associated Items:** CE 014 Wet Scrubber-High Efficiency w/o Lime

CE 015 Wet Scrubber-High Efficiency w/o Lime

EU 049 Conveyor Transfer 005 Feed

EU 050 Conveyor Transfer 005 Discharge

SV 027 Conveyor Transfer 005 Feed

SV 028 Conveyor Transfer 005 Discharge

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot	Title I Condition: a 1991 action that avoided major classification under 40 CFR 52.21
Particulate Matter < 10 micron: less than or equal to 0.01 grains/dry standard cubic foot	Title I Condition: a 1991 action that avoided major classification under 40 CFR 52.21
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subps. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 11/30/2004 on one stack to measure PM and PM10 emissions.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months following Initial Performance Test on the stack that was not tested in the previous 60-month period to measure PM and PM10 emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-12**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 006 Stationary internal combustion engines

Associated Items:

- EU 006 Diesel Generator
- EU 008 Diesel Generator
- EU 009 Diesel Fire Pump
- EU 012 Diesel Generator
- EU 051 Diesel Generator
- EU 215 Diesel Generator
- EU 216 Diesel Generator
- EU 383 Diesel Generator
- EU 384 Diesel Generator
- EU 385 Diesel Generator
- EU 386 Diesel Generator
- EU 387 Air Compressor
- SV 006 Diesel Generator
- SV 009 Diesel Fire Pump
- SV 012 Diesel Generator
- SV 029 Diesel Generator
- SV 098 Diesel Generator
- SV 099 Diesel Generator
- SV 183 Diesel Generator
- SV 184 Diesel Generator
- SV 185 Diesel Generator
- SV 186 Diesel Generator
- SV 187 Diesel Air Compressor

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
B. OPERATION REQUIREMENTS	hdr
The Permittee shall record the amount of diesel fuel consumed each calendar quarter. The Permittee shall obtain and maintain a fuel supplier certification of the sulfur weight percent for each shipment of diesel fuel. If supplier certification is not available, the Permittee shall sample diesel fuel from multiple the tank(s) after each delivery but not more than once each calendar week when multiple deliveries are made. The Permittee shall analyze the fuel sample to determine sulfur content of diesel fuel in ppercent by weight in accordance with the current ASTM method. The Permittee shall maintain records of the fuel deliveries and results of the fuel analysis.	Minn. R. 7007.0800, subp. 4(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-13**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 007 Coal handling sources**Associated Items:** CE 139 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 140 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

EU 367 Coal Unloading Silo

EU 368 Coal Unloading Silo

EU 369 Coal Unloading Silo

EU 370 Coal Unloading Silo

EU 371 Coal Unloading Silo

EU 372 Coal Unloading Silo

EU 373 Coal Unloading Silo

EU 374 Coal Day Bin/Conveyor Transfer

EU 375 Coal Day Bin/Conveyor Transfer

EU 376 Coal Day Bin/Conveyor Transfer

EU 377 Coal Day Bin/Conveyor Transfer

EU 378 Coal Day Bin/Conveyor Transfer

EU 379 Coal Day Bin/Conveyor Transfer

EU 380 Coal Day Bin/Conveyor Transfer

EU 381 Coal Day Bin/Conveyor Transfer

EU 382 Coal Day Bin/Conveyor Transfer

SV 181 Coal Unloading Silo

SV 182 Coal Day Bin/Conveyor Transfer

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Opacity: less than or equal to 20 percent opacity	40 CFR 60.252(c); Minn. R. 7011.1150
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for a control device a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for the stack associated with the control device in this group.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after 11/07/2003 on both stacks to measure Opacity emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-14**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 009 Agglomerator Line 3**Associated Items:** CE 086 Other

CE 088 Gravity Collector - Low Efficiency

CE 145 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 146 Wet Scrubber-High Efficiency

EU 223 L3 Traveling Grate

EU 225 L3 Rotary Kiln

EU 226 L3 Pellet Cooler Secondary Air

MR 001 NOx & SO2 CEMS at Line 3 Waste Gas Stack (SV 103)

SV 103 L3 Waste Gas Stack

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Nitrogen Oxides: less than or equal to 5000 lbs/hour using 24-hour Block Average from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) at Permit Issuance.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 13300 tons/year using 365-day Rolling Sum from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) at Permit Issuance. Representative NOx emission data shall be used to demonstrate compliance for the first 365 days.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 7300 tons/year using 365-day Rolling Sum from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) no later than Feb. 1, 2010.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Fluorides: less than or equal to 1.04 lbs/hour using 3-hour Average at Line 3 Waste Gas Stack (SV 103).	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Carbon Monoxide: less than or equal to 68.8 lbs/hour using 3-hour Average at Line 3 Waste Gas Stack (SV 103).	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Volatile Organic Compounds: less than or equal to 51.6 lbs/hour using 3-hour Average, as propane, at Line 3 Waste Gas Stack (SV 103).	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Sulfur Dioxide: less than or equal to 2 lbs/million Btu heat input when liquid fuel is combusted.	Minn. R. 7011.0610, subp. 2(B)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 2(A)(2)
B. OPERATION REQUIREMENTS	hdr
(Note - CEMS requirements can be found in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 001 through MR 005; and in Table B)	
Install: due before 12/31/2009, Low NOx Burners at the traveling grate preheat zone of Agglomerator Line 3.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup of the last installed traveling grate preheat Low NOx Burner(s) of all five agglomerator lines (Lines 3, 4, 5, 6, and 7). The Permittee shall list individual dates of initial startup of Low NOx Burners in the notice. { This is a reminder. This requirement also appear in Table B of this permit. }	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Fuel Restrictions: The Permittee shall combust at the kiln burner natural gas, fuel oil, and/or types of biomass that are specified in Appendix 1 of this permit; and at the preheat burners natural gas. Other fuels may be combusted for a short period of time during a trial burn as approved by an amendment to this permit.	Title I Condition: To address fuel options for the indurating process modification of 1987-1989, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2
Material Usage: less than or equal to 3000 gallons/month of fuel additive for Agglomerator Lines 3, 4, 5, 6, and 7 (Groups 9, 10, and 11) combined. The Permittee shall maintain for at least three years a monthly record of fuel additive usage including brands and suppliers.	Minn. R. 7007.0800, subp. 2
Material Usage: less than or equal to 16000 gallons/month of slag inhibitor for Agglomerator Lines 3, 4, 5, 6, and 7 (Groups 9, 10, and 11) combined. The Permittee shall maintain for at least three years a monthly record of slag inhibitor usage including brands and suppliers.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-15**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Material/Fuel Usage and Sulfur Content: The Permittee shall 1) record the amount of materials and fuel consumed each day; 2) obtain and maintain a fuel supplier certification of the sulfur weight percent for each shipment of fuel, or sample the fuel oil from multiple the tank(s) after each delivery but not more than once each calendar week when multiple deliveries are made; 3) sample materials entering the grate-kiln once each calendar week; and 4) maintain records of the fuel deliveries, material usage, and analyses results. The Permittee shall analyze the fuel and material samples to determine their sulfur content in ppercent by weight and fuel heating value in accordance with the current ASTM method.	Minn. R. 7007.0800, subp. 4(B)
C. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Title I Condition: Monitoring for fluoride BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Title I Condition: Monitoring for fluoride BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Waste Gas to Heat Input Ratio: The Permittee shall calculate and record, for each hour when valid data are available, the ratio of SV 103 gas flow, as measured by CEMS in cubic feet per hour in standard conditions (scfh), to total heat input at kiln and grate burners in British Thermal Units per hour (Btu/hr). This ratio will be used as an indicator to learn how complete CO & VOC are destroyed in the indurating furnace.	Title I Condition: Monitoring for CO & VOC BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
D. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Permit Issuance to measure Fluorides, CO, and VOC emissions at Line 3 Waste Gas Stack (SV 103).	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Performance Test: due before end of each 60 months starting 05/17/2005 to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-16**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 010 Agglomeration Lines 4 & 5**Associated Items:** CE 101 Other

CE 102 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 103 Wet Scrubber-High Efficiency w/o Lime

CE 111 Other

CE 112 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 113 Wet Scrubber-High Efficiency w/o Lime

EU 259 L4 Traveling Grate

EU 260 L4 Recoup System Air

EU 261 L4 Rotary Kiln

EU 262 L4 Pellet Cooler Secondary Air

EU 280 L5 Traveling Grate

EU 281 L5 Recoup System Air

EU 282 L5 Rotary Kiln

EU 283 L5 Pellet Cooler Secondary Air

MR 002 NOx & SO2 CEMS at Line 4 Waste Gas Stack (SV 118)

MR 003 NOx & SO2 CEMS at Line 5 Waste Gas Stack (SV 127)

SV 118 L4 Waste Gas Stack

SV 127 L5 Waste Gas Stack

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Nitrogen Oxides: less than or equal to 5000 lbs/hour using 24-hour Block Average from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) at Permit Issuance.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 13300 tons/year using 365-day Rolling Sum from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) at Permit Issuance. Representative NOx emission data shall be used to demonstrate compliance for the first 365 days.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 7300 tons/year using 365-day Rolling Sum from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) no later than Feb. 1, 2010.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Fluorides: less than or equal to 1.62 lbs/hour using 3-hour Average at Line 4 Waste Gas Stack (SV 118) and Line 5 Waste Gas Stack (SV 127), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Carbon Monoxide: less than or equal to 98.6 lbs/hour using 3-hour Average at Line 4 Waste Gas Stack (SV 118) and Line 5 Waste Gas Stack (SV 127), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Volatile Organic Compounds: less than or equal to 74.0 lbs/hour using 3-hour Average, as propane, at Line 4 Waste Gas Stack (SV 118) and Line 5 Waste Gas Stack (SV 127), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Sulfur Dioxide: less than or equal to 2 lbs/million Btu heat input, if a liquid fossil fuel is burned.	Minn. R. 7011.0610, subp. 2(B)(1)
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0610, subp. 1(A)(1)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency, provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0610, subp. 1(A)(1); Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-17**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

B. OPERATION REQUIREMENTS	hdr
(Note - CEMS requirements can be found in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 001 through MR 005; and in Table B)	
Install: due before 12/31/2009, Low NOx Burners at the traveling grate preheat zone of each line of Agglomerator Lines 4 and 5.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup of the last installed traveling grate preheat Low NOx Burner(s) of all five agglomerator lines (Lines 3, 4, 5, 6, and 7). The Permittee shall list individual dates of initial startup of Low NOx Burners in the notice. { This is a reminder. This requirement also appear in Table B of this permit. }	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Fuel Restrictions: The Permittee shall combust at the kiln burner natural gas, fuel oil, and/or types of biomass that are specified in Appendix 1 of this permit; and at the preheat burners natural gas. Other fuels may be combusted for a short period of time during a trial burn as approved by an amendment to this permit.	Title I Condition: To address fuel options for the indurating process modification of 1987-1989, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2
Material Usage: less than or equal to 3000 gallons/month of fuel additive for Agglomerator Lines 3, 4, 5, 6, and 7 (Groups 9, 10, and 11) combined. The Permittee shall maintain for at least three years a monthly record of fuel additive usage including brands and suppliers.	Minn. R. 7007.0800, subp. 2
Material Usage: less than or equal to 16000 gallons/month of slag inhibitor for Agglomerator Lines 3, 4, 5, 6, and 7 (Groups 9, 10, and 11) combined. The Permittee shall maintain for at least three years a monthly record of slag inhibitor usage including brands and suppliers.	Minn. R. 7007.0800, subp. 2
Material/Fuel Usage and Sulfur Content: The Permittee shall record the amount of materials and fuel consumed each day. The Permittee shall obtain and maintain a fuel supplier certification of the sulfur weight percent for each shipment of fuel or sample the fuel oil from multiple the tank(s) after each delivery but not more than once each calendar week when multiple deliveries are made. The Permittee shall sample materials entering the grate-kiln once each calendar week. The Permittee shall analyze the fuel and material samples to determine their sulfur content in ppercent by weight and fuel heating value in accordance with the current ASTM method. The Permittee shall maintain records of the fuel deliveries, material usage, and analyses results.	Minn. R. 7007.0800, subp. 4(B)
C. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Title I Condition: Monitoring for fluoride BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Title I Condition: Monitoring for fluoride BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Waste Gas to Heat Input Ratio: The Permittee shall calculate and record, for each hour when valid data are available, the ratio of SV 118 gas flow, as measured by CEMS in cubic feet per hour in standard conditions (scfh), to total heat input at kiln and grate burners of Line 4 in British Thermal Units per hour (Btu/hr); and, similarly, the ratio of SV 127 gas flow to total heat input of Line 5. The ratio will be used as an indicator to learn how complete CO & VOC are destroyed in each indurating furnace.	Title I Condition: Monitoring for CO & VOC BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
D. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Permit Issuance to measure Fluorides, CO, and VOC emissions at Line 4 Waste Gas Stack (SV 118) and Line 5 Waste Gas Stack (SV 127), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Performance Test: due before end of each 60 months starting 05/18/2005 on the stack that was not tested in the previous 60-month period to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-18**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 011 Agglomeration Lines 6 & 7 (Action 007)**Associated Items:** CE 123 Other

CE 124 Gravity Collector - High Efficiency

CE 125 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 126 Wet Scrubber-High Efficiency w/o Lime

CE 133 Other

CE 134 Gravity Collector - High Efficiency

CE 135 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 136 Wet Scrubber-High Efficiency w/o Lime

EU 313 L6 Traveling Grate

EU 314 L6 Recoup System Air

EU 315 L6 Rotary Kiln

EU 316 L6 Pellet Cooler Secondary Air

EU 332 L7 Traveling Grate

EU 333 L7 Recoup System Air

EU 334 L7 Rotary Kiln

EU 335 L7 Pellet Cooler Secondary Air

MR 004 NOx & SO2 CEMS at Line 6 Waste Gas Stack (SV 144)

MR 005 NOx & SO2 CEMS at Line 7 Waste Gas Stack (SV 151)

SV 144 L6 Waste Gas Stack

SV 151 L7 Waste Gas Stack

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Nitrogen Oxides: less than or equal to 5000 lbs/hour using 24-hour Block Average from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) at Permit Issuance.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 13300 tons/year using 365-day Rolling Sum from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) at Permit Issuance. Representative NOx emission data shall be used to demonstrate compliance for the first 365 days.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 7300 tons/year using 365-day Rolling Sum from all five waste gas stacks combined (GP 009 through 011; SV 103, 118, 127, 144, and 151) no later than Feb. 1, 2010.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Fluorides: less than or equal to 1.62 lbs/hour using 3-hour Average at Line 6 Waste Gas Stack (SV 144) and Line 7 Waste Gas Stack (SV 151), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Carbon Monoxide: less than or equal to 74.0 lbs/hour using 3-hour Average at Line 6 Waste Gas Stack (SV 144) and Line 7 Waste Gas Stack (SV 151), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Carbon Monoxide: less than or equal to 99 tons/year using 12-month Rolling Sum for the combustion of wood waste (wood, wood bark, and sawdust) at Lines 6 and 7 combined.	Title I Condition: a 1997 action that avoided major classification under 40 CFR 52.21
Volatile Organic Compounds: less than or equal to 54.3 lbs/hour using 3-hour Average, as propane, at Line 6 Waste Gas Stack (SV 144) and Line 7 Waste Gas Stack (SV 151), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Volatile Organic Compounds: less than or equal to 39 tons/year using 12-month Rolling Sum for the combustion of wood waste (wood, wood bark, and sawdust) at Lines 6 and 7 combined.	Title I Condition: a 1997 action that avoided major classification under 40 CFR 52.21
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0610, subp. 1(A)(1)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-19**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0610, subp. 1(A)(1); Minn. R. 7011.0715, subp. 3
Sulfur Dioxide: less than or equal to 2 lbs/million Btu heat input , if a liquid fossil fuel is burned; or less than or equal to 4 lbs/million Btu heat input, if a solid fossil fuel is burned.	Minn. R. 7011.0610, subp. 2(B)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
B. OPERATION REQUIREMENTS	hdr
(Note - CEMS requirements can be found in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 001 through MR 005; and in Table B)	
Install: due before 12/31/2009, Low NOx Burners at the traveling grate preheat zone of each line of Agglomerator Lines 6, and 7.	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Notification of the Actual Date of Initial Startup: due 15 days after Initial Startup of the last installed traveling grate preheat Low NOx Burner(s) of all five agglomerator lines (Lines 3, 4, 5, 6, and 7). The Permittee shall list individual dates of initial startup of Low NOx Burners in the notice. { This is a reminder. This requirement also appear in Table B of this permit. }	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000
Fuel Restrictions: The Permittee shall combust at the kiln burner natural gas, coal, fuel oil, and/or types of biomass that are specified in Appendix 1 of this permit; and at the preheat burners natural gas. Other fuels may be combusted for a short period of time during a trial burn as approved by an amendment to this permit.	Title I Condition: To address fuel options for the indurating process modification of 1987-1989, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2
Heating Value and Usage of Wood Waste Fuel: a representative wood waste fuel sample shall be collected and analyzed for heating value (Btu/lb) once each calendar quarter. The Permittee shall record, in tons/month, the amount of wood waste combusted in the kilns of this Group.	Title I Condition: a 1997 action that avoided major classification under 40 CFR 52.21
CO and VOC Emission Factors: a performance test for CO and VOC shall be conducted, at either one or both kilns of this Group for at least once, to generate emission factors in lbs/million Btu for purpose of emission calculation for the combustion of wood waste (wood, wood bark, and sawdust).	Title I Condition: a 1997 action that avoided major classification under 40 CFR 52.21
Material Usage: less than or equal to 3000 gallons/month of fuel additive for Agglomerator Lines 3, 4, 5, 6, and 7 (Groups 9, 10, and 11) combined. The Permittee shall maintain for at least three years a monthly record of fuel additive usage including brands and suppliers.	Minn. R. 7007.0800, subp. 2
Material Usage: less than or equal to 16000 gallons/month of slag inhibitor for Agglomerator Lines 3, 4, 5, 6, and 7 (Groups 9, 10, and 11) combined. The Permittee shall maintain for at least three years a monthly record of slag inhibitor usage including brands and suppliers.	Minn. R. 7007.0800, subp. 2
Material/Fuel Usage and Sulfur Content: The Permittee shall record the amount of materials and fuel consumed each day. The Permittee shall obtain and maintain a fuel supplier certification of the sulfur weight percent for each shipment of fuel or sample the fuel oil from multiple the tank(s) after each delivery but not more than once each calendar week when multiple deliveries are made. The Permittee shall sample other fuels and materials entering the grate-kiln once each calendar week. The Permittee shall analyze the fuel and material samples to determine their sulfur content in ppercent by weight and fuel heating value in accordance with the current ASTM method. The Permittee shall maintain records of the fuel deliveries, material usage, and analyses results.	Minn. R. 7007.0800, subp. 4(B)
C. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Title I Condition: Monitoring for fluoride BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Title I Condition: Monitoring for fluoride BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Waste Gas to Heat Input Ratio: The Permittee shall calculate and record, for each hour when valid data are available, the ratio of SV 144 gas flow, as measured by CEMS in cubic feet per hour in standard conditions (scfh), to total heat input at kiln and grate burners of Line 6 in British Thermal Units per hour (Btu/hr); and, similarly, the ratio of SV 151 gas flow to total heat input of Line 7. The ratio will be used as an indicator to learn how complete CO & VOC are destroyed in each indurating furnace.	Title I Condition: Monitoring for CO & VOC BACT, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-20**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

D. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Permit Issuance to measure Fluorides, CO, and VOC emissions at Line 6 Waste Gas Stack (SV 144) and Line 7 Waste Gas Stack (SV 151), respectively.	Title I Condition: BACT emission limit, 40 CFR 52.21(j)(3); Minn. R. 7007.3000.
Performance Test: due before end of each 60 months starting 04/20/2005 on the stack that was not tested in the previous 60-month period to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-21**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 012 Pre-1969 ore transfer points around crushers**Associated Items:** CE 001 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 008 Wet Scrubber-High Efficiency w/o Lime

CE 010 Wet Scrubber-High Efficiency w/o Lime

CE 016 Wet Scrubber-High Efficiency w/o Lime

CE 021 Wet Scrubber-High Efficiency w/o Lime

CE 022 Wet Scrubber-High Efficiency w/o Lime

CE 047 Wet Scrubber-High Efficiency w/o Lime

EU 013 Step I Coarse Crusher

EU 014 Step I Coarse Crusher

EU 034 Conveyor Transfer 005-006

EU 035 Conveyor Transfer 005-006

EU 040 Conveyor Transfer 005-006

EU 052 Conveyor Transfer 008 to 009

EU 053 Conveyor Transfer 008 to 009

EU 058 Conveyor Transfer 005 to 006

EU 059 Conveyor Transfer 005 to 006

EU 060 Conveyor Transfer 005 to 006

EU 061 Conveyor Transfer 003 to 004

EU 062 Conveyor Transfer 003 to 004

EU 063 Conveyor Transfer 003 to 004

EU 064 Conveyor Transfer 003 to 004

EU 065 Tertiary Storage Bin 1-4

EU 066 Tertiary Storage Bin 1-4

EU 067 Tertiary Storage Bin 1-4

EU 102 Storage Bin 070-02

SV 013 Step I Coarse Crusher

SV 021 Conveyor Transfer 005-006

SV 023 Conveyor Transfer 005-006

SV 030 Conveyor Transfer 008-009

SV 035 Conveyor Transfer 005-006

SV 036 Conveyor Transfer 003-004

SV 037 Tertiary Storage Bins 1-4

SV 061 Storage Bin 070-02

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0710, subp. 1(A)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-22**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0710, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate for Wet Scrubbers: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) for SV 013 (CE 001) once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for CE 001 a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for SV 013.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after permit issuance on one stack to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months following Initial Performance Test on one stack that was not tested in the previous 60-month period to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-23**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 013 Post-1969 ore transfer points around crushers**Associated Items:** CE 002 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 003 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 006 Wet Scrubber-High Efficiency w/o Lime

CE 007 Wet Scrubber-High Efficiency w/o Lime

CE 009 Wet Scrubber-High Efficiency w/o Lime

CE 011 Wet Scrubber-High Efficiency w/o Lime

CE 012 Wet Scrubber-High Efficiency w/o Lime

CE 013 Wet Scrubber-High Efficiency w/o Lime

CE 023 Wet Scrubber-High Efficiency w/o Lime

CE 040 Wet Scrubber-High Efficiency w/o Lime

EU 015 Step II Coarse Crusher

EU 016 Step II Coarse Crusher

EU 017 Step III Coarse Crusher & Lime Dump

EU 018 Step III Coarse Crusher & Lime Dump

EU 019 Step III Coarse Crusher & Lime Dump

EU 020 Step III Coarse Crusher & Lime Dump

EU 026 Step III Coarse Crusher Pan Feeders & Lime Transfer

EU 027 Step III Coarse Crusher Pan Feeders & Lime Transfer

EU 036 Conveyor Transfer 010-01

EU 037 Conveyor Transfer 010-01

EU 038 Conveyor Transfer 010-01

EU 039 Conveyor Transfer 010-01

EU 041 Conveyor Transfer 004-005

EU 042 Conveyor Transfer 004-005

EU 043 Conveyor Transfer 004-005

EU 044 Conveyor Transfer 004-005

EU 045 Conveyor Transfer 004-005

EU 046 Conveyor Transfer 004-005

EU 047 Conveyor Transfer 011-02/03

EU 048 Surge Pile/Reclaim 011-01

EU 068 Tertiary Storage Bin 1-4

EU 085 Tertiary Crusher 080 Bins 5-8

EU 086 Tertiary Crusher 080 Bins 5-8

EU 087 Tertiary Crusher 080 Bins 5-8

EU 088 Tertiary Crusher 080 Bins 5-8

EU 089 Tertiary Crusher 080 Bins 5-8

EU 090 Tertiary Crusher 080 Bins 5-8

EU 091 Tertiary Crusher 080 Bins 5-8

EU 092 Tertiary Crusher 080 Bins 5-8

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-24**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Associated Items: SV 014 Step II Coarse Crusher

SV 015 Step III Coarse Crusher

SV 018 Step III Coarse Crusher Pan Feeders

SV 022 Conveyor Transfer 010-01

SV 024 Conveyor Transfer 004-005

SV 025 Conveyor Transfer 011-02/03

SV 026 Surge Pile/Reclaim 011-01

SV 037 Tertiary Storage Bins 1-4

SV 054 Tertiary Crusher 080 5-8 Bins

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency, provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate for Wet Scrubbers: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) for SV 014 (CE 002) and SV 015 (CE 003) once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for a control device a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for the stack associated with the control device in this group.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 11/30/2004 on SV 054 and another stack to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months following Initial Performance Test on one stack that was not tested in the previous 60-month period to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-25**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 014 Pre-1969 secondary crushers**Associated Items:** CE 017 Wet Scrubber-High Efficiency w/o Lime

CE 018 Wet Scrubber-High Efficiency w/o Lime

CE 019 Wet Scrubber-High Efficiency w/o Lime

CE 020 Wet Scrubber-High Efficiency w/o Lime

EU 054 Secondary Crusher L1

EU 055 Secondary Crusher L2

EU 056 Secondary Crusher L3

EU 057 Secondary Crusher L4

SV 031 Secondary Crusher L1

SV 032 Secondary Crusher L2

SV 033 Secondary Crusher L3

SV 034 Secondary Crusher L4

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0710, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0710, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after 11/07/2003 on one stack to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-26**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 015 Pre-1969 tertiary crushers**Associated Items:** CE 024 Wet Scrubber-High Efficiency w/o Lime

CE 025 Wet Scrubber-High Efficiency w/o Lime

CE 026 Wet Scrubber-High Efficiency w/o Lime

CE 027 Wet Scrubber-High Efficiency w/o Lime

CE 028 Wet Scrubber-High Efficiency w/o Lime

CE 029 Wet Scrubber-High Efficiency w/o Lime

EU 069 Tertiary Crusher L1

EU 070 Tertiary Crusher L2

EU 071 Tertiary Crusher L3

EU 072 Tertiary Crusher L4

EU 073 Tertiary Crusher L5

EU 074 Tertiary Crusher L6

SV 038 Tertiary Crusher L1

SV 039 Tertiary Crusher L2

SV 040 Tertiary Crusher L3

SV 041 Tertiary Crusher L4

SV 042 Tertiary Crusher L5

SV 043 Tertiary Crusher L6

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0710, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0710, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 365 days after 11/30/2004 on one stack to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-27**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 016 Post-1969 secondary crushers

Associated Items:

CE 041 Wet Scrubber-High Efficiency w/o Lime

CE 042 Wet Scrubber-High Efficiency w/o Lime

CE 043 Wet Scrubber-High Efficiency w/o Lime

CE 044 Wet Scrubber-High Efficiency w/o Lime

CE 045 Wet Scrubber-High Efficiency w/o Lime

CE 048 Wet Scrubber-High Efficiency w/o Lime

CE 050 Wet Scrubber-High Efficiency w/o Lime

CE 051 Wet Scrubber-High Efficiency w/o Lime

CE 052 Wet Scrubber-High Efficiency w/o Lime

CE 053 Wet Scrubber-High Efficiency w/o Lime

CE 054 Wet Scrubber-High Efficiency w/o Lime

EU 093 Secondary Crusher L6

EU 094 Secondary Crusher L7

EU 095 Secondary Crusher L8

EU 096 Secondary Crusher L9

EU 097 Secondary Crusher L10

EU 103 Secondary Crusher L5

EU 106 Secondary Crusher L11

EU 107 Secondary Crusher L12

EU 108 Secondary Crusher L13

EU 109 Secondary Crusher L14

EU 110 Secondary Crusher L15

SV 055 Secondary Crusher L6

SV 056 Secondary Crusher L7

SV 057 Secondary Crusher L8

SV 058 Secondary Crusher L9

SV 059 Secondary Crusher L10

SV 062 Secondary Crusher L5

SV 064 Secondary Crusher L11

SV 065 Secondary Crusher L12

SV 066 Secondary Crusher L13

SV 067 Secondary Crusher L14

SV 068 Secondary Crusher L15

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-28**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: M Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 11/07/2003 on one stack to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-29**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 017 Post-1969 ore transfer for fine crushers**Associated Items:** CE 046 Wet Scrubber-High Efficiency w/o Lime

CE 049 Wet Scrubber-High Efficiency w/o Lime

CE 055 Wet Scrubber-High Efficiency w/o Lime

CE 056 Wet Scrubber-High Efficiency w/o Lime

CE 057 Wet Scrubber-High Efficiency w/o Lime

CE 058 Wet Scrubber-High Efficiency w/o Lime

CE 071 Wet Scrubber-High Efficiency w/o Lime

EU 098 Conveyor Transfer 008 to 009

EU 099 Conveyor Transfer 008 to 009

EU 100 Conveyor Transfer 008 to 009

EU 101 Conveyor Transfer 008 to 009

EU 104 Conveyor Transfer 008-009

EU 105 Conveyor Transfer 008-009

EU 111 Conveyor Transfer 001-070 Bin

EU 112 Conveyor Transfer 003

EU 113 Conveyor Transfer 003

EU 114 Conveyor Transfer 003-004

EU 115 Conveyor Transfer 003-004

EU 116 Tertiary Storage 006-080 Bin

EU 117 Tertiary Storage 006-080 Bin

EU 118 Tertiary Storage 006-080 Bin

EU 119 Tertiary Storage 006-080 Bin

EU 120 Tertiary Storage 006-080 Bin

EU 121 Tertiary Storage 006-080 Bin

EU 122 Tertiary Storage 006-080 Bin

EU 123 Tertiary Storage 006-080 Bin

EU 124 Tertiary Storage 006-080 Bin

EU 125 Tertiary Storage 006-080 Bin

EU 126 Tertiary Storage 006-080 Bin

EU 127 Tertiary Storage 006-080 Bin

EU 140 Conveyor Transfer 005-006

EU 141 Conveyor Transfer 005-006

SV 060 Conveyor Transfer 008-009

SV 063 Conveyor Transfer 008-009

SV 069 Conveyor Transfer 001-070 Bin

SV 070 Conveyor Transfer 003

SV 071 Conveyor Transfer 003-004

SV 072 Tertiary Storage 006-080 Bins

SV 085 Conveyor Transfer 005-006

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-30**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Monitor and record as least once every day when in operation, once the pressure gauge is installed for each piece of control equipment in this group. Complete pressure drop monitoring equipment debugging, trouble-shooting, and establishment of parameter range within 180 days of installation.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Monitor and record as least once every day when in operation, once the monitoring equipment is installed for each piece of wet scrubbers in this group. Complete monitoring equipment debugging, trouble-shooting, and establishment of parameter range within 180 days of installation.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 11/30/2004 on two stacks to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months following Initial Performance Test on two stacks that were not tested in the previous 60-month period to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-31**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 018 Post-1969 tertiary crushers

Associated Items:

CE 030 Wet Scrubber-High Efficiency w/o Lime

CE 031 Wet Scrubber-High Efficiency w/o Lime

CE 032 Wet Scrubber-High Efficiency w/o Lime

CE 033 Wet Scrubber-High Efficiency w/o Lime

CE 034 Wet Scrubber-High Efficiency w/o Lime

CE 035 Wet Scrubber-High Efficiency w/o Lime

CE 036 Wet Scrubber-High Efficiency w/o Lime

CE 037 Wet Scrubber-High Efficiency w/o Lime

CE 038 Wet Scrubber-High Efficiency w/o Lime

CE 039 Wet Scrubber-High Efficiency w/o Lime

CE 059 Wet Scrubber-High Efficiency w/o Lime

CE 060 Wet Scrubber-High Efficiency w/o Lime

CE 061 Wet Scrubber-High Efficiency w/o Lime

CE 062 Wet Scrubber-High Efficiency w/o Lime

CE 063 Wet Scrubber-High Efficiency w/o Lime

CE 064 Wet Scrubber-High Efficiency w/o Lime

CE 065 Wet Scrubber-High Efficiency w/o Lime

CE 066 Wet Scrubber-High Efficiency w/o Lime

CE 067 Wet Scrubber-High Efficiency w/o Lime

CE 068 Wet Scrubber-High Efficiency w/o Lime

CE 069 Wet Scrubber-High Efficiency w/o Lime

EU 075 Tertiary Crusher L7

EU 076 Tertiary Crusher L8

EU 077 Tertiary Crusher L9

EU 078 Tertiary Crusher L10

EU 079 Tertiary Crusher L11

EU 080 Tertiary Crusher L12

EU 081 Tertiary Crusher L13

EU 082 Tertiary Crusher L14

EU 083 Tertiary Crusher L15

EU 084 Tertiary Crusher L16

EU 128 Tertiary Crusher L18

EU 129 Tertiary Crusher L19

EU 130 Tertiary Crusher L20

EU 131 Tertiary Crusher L21

EU 132 Tertiary Crusher L22

EU 133 Tertiary Crusher L23

EU 134 Tertiary Crusher L24

EU 135 Tertiary Crusher L25

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-32**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Associated Items: EU 136 Tertiary Crusher L26
 EU 137 Tertiary Crusher L27
 EU 138 Tertiary Crusher L28
 SV 044 Tertiary Crusher L7
 SV 045 Tertiary Crusher L8
 SV 046 Tertiary Crusher L9
 SV 047 Tertiary Crusher L10
 SV 048 Tertiary Crusher L11
 SV 049 Tertiary Crusher L12
 SV 050 Tertiary Crusher L13
 SV 051 Tertiary Crusher L14
 SV 052 Tertiary Crusher L15
 SV 053 Tertiary Crusher L16
 SV 073 Tertiary Crusher L18
 SV 074 Tertiary Crusher L19
 SV 075 Tertiary Crusher L20
 SV 076 Tertiary Crusher L21
 SV 077 Tertiary Crusher L22
 SV 078 Tertiary Crusher L23
 SV 079 Tertiary Crusher L24
 SV 080 Tertiary Crusher L25
 SV 081 Tertiary Crusher L26
 SV 082 Tertiary Crusher L27
 SV 083 Tertiary Crusher L28

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-33**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Initial Performance Test: due 730 days after 11/30/2004 on three stacks to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months following Initial Performance Test on two stacks that were not tested in the previous 60-month period to measure PM emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-34**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 019 Pre-1969 ore transfer to bins**Associated Items:** CE 073 Wet Scrubber-High Efficiency w/o Lime

CE 074 Wet Scrubber-High Efficiency w/o Lime

CE 075 Wet Scrubber-High Efficiency w/o Lime

EU 144 Conveyor Transfer 009-020

EU 145 Conveyor Transfer 009-020

EU 148 Storage Bin L1,2

EU 149 Storage Bin L1,2

EU 150 Storage Bin L1,2

EU 151 Storage Bin L1,2

EU 152 Storage Bin L1,2

EU 153 Storage Bin L1,2

EU 154 Storage Bin L1,2

EU 155 Storage Bin L3,4

EU 156 Storage Bin L3,4

EU 157 Storage Bin L3,4

EU 158 Storage Bin L3,4

EU 159 Storage Bin L3,4

EU 160 Storage Bin L3,4

EU 161 Storage Bin L3,4

EU 162 Storage Bin L5,6

EU 163 Storage Bin L5,6

EU 164 Storage Bin L5,6

EU 165 Storage Bin L5,6

EU 166 Storage Bin L5,6

EU 167 Storage Bin L5,6

EU 168 Storage Bin L5,6

SV 088 Storage Bin L1, 2

SV 089 Storage Bin L3, 4

SV 090 Storage Bin L5, 6

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0710, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0710, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-35**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after 11/07/2003 on two stacks to measure PM emission, and on all stacks to measure Opacity emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-36**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 020 Post-1969 ore transfer to bins

Associated Items:

- CE 072 Wet Scrubber-High Efficiency w/o Lime
- CE 076 Wet Scrubber-High Efficiency w/o Lime
- CE 077 Wet Scrubber-High Efficiency w/o Lime
- CE 078 Wet Scrubber-High Efficiency w/o Lime
- CE 079 Wet Scrubber-High Efficiency w/o Lime
- CE 080 Wet Scrubber-High Efficiency w/o Lime
- CE 081 Wet Scrubber-High Efficiency w/o Lime
- CE 082 Wet Scrubber-High Efficiency w/o Lime
- EU 146 Conveyor Transfer 009-020
- EU 147 Conveyor Transfer 009-020
- EU 169 Storage Bin L7,8
- EU 170 Storage Bin L7,8
- EU 171 Storage Bin L7,8
- EU 172 Storage Bin L7,8
- EU 173 Storage Bin L7,8
- EU 174 Storage Bin L7,8
- EU 175 Storage Bin L7,8
- EU 176 Storage Bin L9,10
- EU 177 Storage Bin L9,10
- EU 178 Storage Bin L9,10
- EU 179 Storage Bin L9,10
- EU 180 Storage Bin L9,10
- EU 181 Storage Bin L9,10
- EU 182 Storage Bin L9,10
- EU 183 Storage Bin L11,12
- EU 184 Storage Bin L11,12
- EU 185 Storage Bin L11,12
- EU 186 Storage Bin L11,12
- EU 187 Storage Bin L11,12
- EU 188 Storage Bin L11,12
- EU 189 Storage Bin L11,12
- EU 190 Conveyor Transfer 009-020
- EU 191 Conveyor Transfer 009-020
- EU 192 Conveyor Transfer 009-020
- EU 193 Conveyor Transfer 009-020
- EU 194 Storage Bin L13,14
- EU 195 Storage Bin L13,14
- EU 196 Storage Bin L13,14
- EU 197 Storage Bin L13,14

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-37**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Associated Items:

EU 198 Storage Bin L13,14

EU 199 Storage Bin L13,14

EU 200 Storage Bin L13,14

EU 201 Storage Bin L15,16

EU 202 Storage Bin L15,16

EU 203 Storage Bin L15,16

EU 204 Storage Bin L15,16

EU 205 Storage Bin L15,16

EU 206 Storage Bin L15,16

EU 207 Storage Bin L15,16

EU 208 Storage Bin L17,18

EU 209 Storage Bin L17,18

EU 210 Storage Bin L17,18

EU 211 Storage Bin L17,18

EU 212 Storage Bin L17,18

EU 213 Storage Bin L17,18

EU 214 Storage Bin L17,18

SV 087 Conveyor Transfer 009-020

SV 091 Storage Bin L7, 8

SV 092 Storage Bin L9, 10

SV 093 Storage Bin L11, 12

SV 094 Conveyor Transfer 009-020

SV 095 Storage Bin L13, 14

SV 096 Storage Bin L15, 16

SV 097 Storage Bin L17, 18

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-38**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Initial Performance Test: due 730 days after 11/30/2004 on two stacks to measure PM emission, and on all stacks to measure Opacity emission.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months following Initial Performance Test on two stacks that were not tested in the previous 60-month period to measure PM emission, and on all stacks to measure Opacity emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-39**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 021 Pre-1969 mixing & pellet handling for Step I**Associated Items:** CE 083 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 084 Wet Scrubber-High Efficiency w/o Lime

CE 085 Wet Scrubber-High Efficiency w/o Lime

CE 089 Wet Scrubber-High Efficiency w/o Lime

CE 090 Wet Scrubber-High Efficiency w/o Lime

CE 091 Wet Scrubber-High Efficiency w/o Lime

CE 092 Wet Scrubber-High Efficiency w/o Lime

EU 217 L3 Bentonite Blending

EU 218 L3 Bentonite Blending

EU 219 L3 Bentonite Blending

EU 220 L3 Bentonite Blending

EU 221 L3 Grate Feed

EU 222 L3 Grate Discharge

EU 228 L3 Cooler Discharge

EU 229 L3 Feeder 041/046 Belts

EU 230 L3 041/046 Conveyor Belt Vent

EU 231 L3 041/046 Conveyor Belt Vent

EU 232 S1 Conveyor Transfer 042-043

EU 233 S1 Conveyor Transfer 042-043

EU 234 L3 Conveyor Transfer 041-042

EU 235 L3 Conveyor Transfer 041-042

SV 101 L3 Grate Feed

SV 102 L3 Grate Discharge

SV 105 L3 Cooler Dump Zone

SV 106 L3 Feeder 041, 046 Belts

SV 107 L3 041/046 Conveyor Belt Vent

SV 108 S1 Conveyor Transfer 042-043

SV 109 L1 Conveyor Transfer 041-042

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0710, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0710, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-40**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Gas Stream Pressure Drop: Monitor and record as least once every day when in operation, once the pressure gauge is installed for each piece of control equipment in this group. Complete pressure drop monitoring equipment debugging, trouble-shooting, and establishment of parameter range within 180 days of installation.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate for Wet Scrubbers: Monitor and record as least once every day when in operation, once the monitoring equipment is installed for each piece of wet scrubbers in this group. Complete monitoring equipment debugging, trouble-shooting, and establishment of parameter range within 180 days of installation.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) for SV 100 (CE 083) once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for CE 083 a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for SV 100.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 365 days after 11/07/2003 on SV 105 and another stack to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-41**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 022 Post-1969 cooler vent stacks for Steps II & III

Associated Items: EU 263 L4 Pellet Cooler Vent Stack

EU 284 L5 Pellet Cooler Vent Stack

EU 397 L6 Pellet Cooler Vent Stack

EU 398 L7 Pellet Cooler Vent Stack

SV 119 L4 Cooler Vent Stack

SV 128 L5 Cooler Vent Stack

SV 196 L6 Pellet Cooler Stack

SV 197 L7 Pellet Cooler Stack

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. OPERATION REQUIREMENTS	hdr
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) once daily using a checklist that at a minimum contains the information required in Appendix B.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 365 days after 11/30/2004 on all stacks to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each year following Initial Performance Test on all stacks to measure PM and Opacity emissions. After at least three years of performance testing data are submitted, the Permittee may request that future testing be scheduled according to a test frequency plan proposed based on submitted testing data.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-42**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 023 Pre-1969 bentonite equipment**Associated Items:** CE 093 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 094 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 095 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

EU 236 S1 Bentonite Storage Bin

EU 237 S1 Bentonite Storage Bin

EU 238 S1 Bentonite Storage Bin

EU 239 L2,3 Bentonite Day Bin

EU 240 L2,3 Bentonite Day Bin

EU 241 L2,3 Bentonite Day Bin

EU 242 L2,3 Bentonite Day Bin

EU 243 S1,2 Bentonite Unloading

SV 110 S1 Bentonite Storage Bin

SV 111 L2, 3 Bentonite Day Bin

SV 112 S1, 2 Bentonite Unloading

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0710, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0710, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Monitor and record as least once every day when in operation, once the pressure gauge is installed for each piece of control equipment in this group. Complete pressure drop monitoring equipment debugging, trouble-shooting, and establishment of parameter range within 180 days of installation.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for a control device a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for the stack associated with the control device in this group.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 11/07/2003 on one stack to measure PM emission, and on all stacks to measure Opacity emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-43**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 024 Post-1969 bentonite equipment

Associated Items: CE 096 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 097 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 107 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 118 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 119 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 129 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 142 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
EU 244 S2 Bentonite Storage Bin
EU 245 S2 Bentonite Storage Bin
EU 246 S2 Bentonite Storage Bin
EU 247 L4 Bentonite Day Bins
EU 248 L4 Bentonite Day Bins
EU 249 L4 Bentonite Day Bins
EU 250 L4 Bentonite Day Bins
EU 251 L4 Bentonite Day Bins
EU 268 L5 Bentonite Day Bins
EU 269 L5 Bentonite Day Bins
EU 270 L5 Bentonite Day Bins
EU 271 L5 Bentonite Day Bins
EU 272 L5 Bentonite Day Bins
EU 297 S3 Bentonite Storage
EU 298 S3 Bentonite Storage
EU 299 S3 Bentonite Storage
EU 300 S3 Ben storage+unloading hopper
EU 301 L6 Bentonite Day Bin
EU 302 L6 Bentonite Day Bin
EU 303 L6 Bentonite Day Bin
EU 304 L6 Bentonite Day Bin
EU 305 L6 Bentonite Day Bin
EU 320 L7 Bentonite Day Bin
EU 321 L7 Bentonite Day Bin
EU 322 L7 Bentonite Day Bin
EU 323 L7 Bentonite Day Bin
EU 324 L7 Bentonite Day Bin
SV 113 S2 Bentonite Storage Bin
SV 114 L4 Bentonite Day Bin
SV 123 L5 Bentonite Day Bin
SV 139 S3 Bentonite Storage
SV 140 L6 Bentonite Day Bin

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-44**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Associated Items: SV 147 L7 Bentonite Day Bin

SV 193 Step III Bentonite Storage Baghouse

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Upon installation of monitoring equipment, monitor and record at least once every day when in operation. Once the operating range is established it becomes an enforceable part of this permit. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for a control device a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for the stack associated with the control device in this group.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 11/07/2003 on one stack to measure PM emission, and on all stacks to measure Opacity emission.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-45**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 025 Post-1969 mixers for Steps II & III**Associated Items:** CE 098 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 099 Wet Scrubber-High Efficiency w/o Lime

CE 100 Wet Scrubber-High Efficiency w/o Lime

CE 108 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 109 Wet Scrubber-High Efficiency w/o Lime

CE 110 Wet Scrubber-High Efficiency w/o Lime

CE 120 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 121 Wet Scrubber-High Efficiency w/o Lime

CE 122 Wet Scrubber-High Efficiency w/o Lime

CE 130 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 131 Wet Scrubber-High Efficiency w/o Lime

CE 132 Wet Scrubber-High Efficiency w/o Lime

EU 252 L4 Bentonite Blending

EU 253 L4 Bentonite Blending

EU 254 L4 Bentonite Blending

EU 255 L4 Bentonite Blending

EU 256 L4 Bentonite Blending

EU 257 L4 Grate Feed

EU 258 L4 Grate Discharge

EU 273 L5 Bentonite Blending

EU 274 L5 Bentonite Blending

EU 275 L5 Bentonite Blending

EU 276 L5 Bentonite Blending

EU 277 L5 Bentonite Blending

EU 278 L5 Grate Feed

EU 279 L5 Grate Discharge

EU 306 L6 Bentonite Blending

EU 307 L6 Bentonite Blending

EU 308 L6 Bentonite Blending

EU 309 L6 Bentonite Blending

EU 310 L6 Bentonite Blending

EU 311 L6 Grate Feed

EU 312 L6 Grate Discharge

EU 325 L7 Bentonite Blending

EU 326 L7 Bentonite Blending

EU 327 L7 Bentonite Blending

EU 328 L7 Bentonite Blending

EU 329 L7 Bentonite Blending

EU 330 L7 Grate Feed

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-46**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Associated Items: EU 331 L7 Grate Discharge

SV 115 L4 Bentonite Blending

SV 116 L4 Grate Feed

SV 117 L4 Grate Discharge

SV 124 L5 Bentonite Blending

SV 125 L5 Grate Feed

SV 126 L5 Grate Discharge

SV 141 L6 Bentonite Blending

SV 142 L6 Grate Feed

SV 143 L6 Grate Discharge

SV 148 L7 Bentonite Blending

SV 149 L7 Grate Feed

SV 150 L7 Grate Discharge

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Monitor and record as least once every day when in operation, once the pressure gauge is installed for each piece of control equipment in this group. Complete pressure drop monitoring equipment debugging, trouble-shooting, and establishment of parameter range within 180 days of installation.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Liquid Flow Rate for Wet Scrubbers: Monitor and record as least once every day when in operation, once the monitoring equipment is installed for each piece of wet scrubbers in this group. Complete monitoring equipment debugging, trouble-shooting, and establishment of parameter range within 180 days of installation.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J)
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) for SV 115, SV 124, SV 141, and SV 148 once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for a fabric filter (CE 098, CE 108, CE 120, or CE 130) a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for the stack controlled by that fabric filter (SV 115, SV 124, SV 141, or SV 148, respectively).	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 730 days after 11/07/2003 on one stack from (SV 116, 117, 125, 126, 142, 143, 149, or 150) and another stack to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-47**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 026 Post-1969 pellet handling for Steps II and III

Associated Items:

CE 104 Wet Scrubber-High Efficiency w/o Lime

CE 105 Wet Scrubber-High Efficiency w/o Lime

CE 114 Wet Scrubber-High Efficiency w/o Lime

CE 115 Wet Scrubber-High Efficiency w/o Lime

CE 117 Wet Scrubber-High Efficiency w/o Lime

CE 127 Wet Scrubber-High Efficiency w/o Lime

CE 137 Wet Scrubber-High Efficiency w/o Lime

EU 265 L4 Cooler Discharge

EU 286 L5 Cooler Discharge

EU 295 S3 Conveyor Transfer

EU 296 S3 Conveyor Transfer

EU 317 L6 Cooler Dump zone

EU 336 L7 Cooler Dump Zone

EU 339 Step I 043/044 Conveyor Transfer

EU 340 Step I 043/044 Conveyor Transfer

SV 120 L4 Conveyor Transfer Feeder

SV 121 L4 Cooler Dump Zone

SV 129 L5 Conveyor Transfer Feeder

SV 130 L5 Cooler Dump Zone

SV 138 S3 Conveyor Transfer

SV 146 L6 Conveyor Transfer

SV 153 L7 Conveyor Transfer

SV 154 Step I 043/044 Conv. Trans

SV 155 Step I 043/044 Conv. Trans

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735; or, alternatively, as below:	Minn. R. 7011.0715, subp. 1(A)
Total Particulate Matter: greater than or equal to 85 percent collection efficiency , provided that the entire emission facility is in compliance with NAAQS and MAAQS, and the emission facility is located not less than one-fourth mile from any residence or public roadway. (This is an alternative demonstration of compliance to Total Particulate Matter Limit.)	Minn. R. 7011.0715, subp. 3
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
B. CONTROL EQUIPMENT MONITORING	hdr
Pressure Drop: greater than or equal to 13.5 inches of water column using 8-hour Block Average on the gas stream. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J); 7017.2025, subp. 3
Liquid Flow Rate: greater than or equal to 297 gallons/minute using 8-hour Block Average on the wet scrubber. A deviation from the established range shall trigger a corrective action as detailed in the O&M plan.	Minn. R. 7007.0800, subp. 4(D); subp. 14; subp. 16(J); 7017.2025, subp. 3
C. PERFORMANCE TESTING REQUIREMENTS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: US Steel Corp - Minntac
Permit Number: 13700005 - 005

Initial Performance Test: due 365 days after 11/07/2003 on one stack from (SV 121, 130, 146, or 153) and another stack to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-49**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 027 Post-1969 conveyor transfer points without APCE

Associated Items:

- EU 289 Step I 043 Conveyor Vents
- EU 290 Step I 043 Conveyor Vents
- EU 291 Step I 043 Conveyor Vents
- EU 292 Step I 043 Conveyor Vents
- EU 293 Step I 043 Conveyor Vents
- EU 294 Step I 043 Conveyor Vents
- EU 318 L6 Conveyor Transfer
- EU 319 L6 Conveyor Transfer
- EU 337 L7 Conveyor Transfer
- EU 338 L7 Conveyor Transfer
- EU 341 Step III 042 Conveyor Vent
- EU 342 Step III 042 Conveyor Vent
- EU 343 Step III 043 Conveyor Vent
- EU 344 Step III 043 Conveyor Vent
- EU 345 Step III 044 Conveyor Vent
- EU 346 Step III 044 Conveyor Vent
- EU 347 Step III 044 Conveyor Vent
- EU 348 Step III 044 Conveyor Vent
- EU 349 Step III 044 Conveyor Vent
- EU 350 Step III 044 Conveyor Vent
- EU 351 Step III 044 Conveyor Vent
- EU 352 Step III 044 Conveyor Vent
- EU 353 Step III 044 Conveyor Vent
- EU 354 Step III 044 Conveyor Vent
- EU 355 Step III 044 Conveyor Vent
- EU 356 Step III 044 Conveyor Vent
- EU 357 Step III 044 Conveyor Vent
- EU 358 Step III 044 Conveyor Vent
- EU 359 Step III 043/044 Conveyor Transfer
- EU 360 Step III 043/044 Conveyor Transfer
- EU 361 Step III 043/044 Conveyor Transfer
- EU 362 Step III 043/044 Conveyor Transfer
- EU 363 Step III 044-6/044-7 Conveyor Transfer
- EU 364 Step III 044-6/044-7 Conveyor Transfer
- EU 365 Step III 044-6/044-7 Conveyor Transfer
- EU 366 Step III Pellet Loadout
- SV 132 Step I 043 Conveyor Vents
- SV 133 Step I 043 Conveyor Vents
- SV 134 Step I 043 Conveyor Vents

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-50**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Associated Items:

- SV 135 Step I 043 Conveyor Vents
- SV 136 Step I 043 Conveyor Vents
- SV 137 Step I 043 Conveyor Vents
- SV 156 Step III 042 Conveyor Vent
- SV 157 Step III 042 Conveyor Vent
- SV 158 Step III 043 Conveyor Vent
- SV 159 Step III 043 Conveyor Vent
- SV 160 Step III 044 Conveyor Vent
- SV 161 Step III 044 Conveyor Vent
- SV 162 Step III 044 Conveyor Vent
- SV 163 Step III 044 Conveyor Vent
- SV 164 Step III 044 Conveyor Vent
- SV 165 Step III 044 Conveyor Vent
- SV 166 Step III 044 Conveyor Vent
- SV 167 Step III 044 Conveyor Vent
- SV 168 Step III 044 Conveyor Vent
- SV 169 Step III 044 Conveyor Vent
- SV 170 Step III 044 Conveyor Vent
- SV 171 Step III 044 Conveyor Vent
- SV 172 Step III 044 Conveyor Vent
- SV 173 Step III 044 Conveyor Vent
- SV 174 Step III 043/044 Conveyor Transfer
- SV 175 Step III 043/044 Conveyor Transfer
- SV 176 Step III 043/044 Conveyor Transfer
- SV 177 Step III 043/044 Conveyor Transfer
- SV 178 Step III 044-6/044-7 Conveyor Transfer
- SV 179 Step III 044-6/044-7 Conveyor Transfer
- SV 180 Step III Pellet Loadout

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-51**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: GP 028 Limestone handling (Actions 007 and 008)**Associated Items:** CE 070 Wet Scrubber-High Efficiency w/o Lime

CE 143 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

EU 139 Tertiary Crusher L29

EU 393 Limestone Dump Pocket

EU 394 Limestone conveyer trnsfr 1

EU 395 Limestone conveyer trnsfr 2

SV 084 Tertiary Crusher L29

SV 194 Limestone Receiving System

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.022 grains/dry standard cubic foot (0.05 grams per dry standard cubic meter).	40 CFR 60.672(a)(1)
Opacity: less than or equal to 7 percent opacity for SV 194, which is controlled by CE 143 (the fabric filter for limestone receiving system dump pocket & transfer point no. 1).	40 CFR 60.672(a)(2)
B. CONTROL EQUIPMENT REQUIREMENTS	hdr
Pressure Drop: greater than or equal to 3.2 inches of water column and less than or equal to 5.7 inches of water column for CE 070 (wet scrubber) that controls SV 084 for EU 395 (limestone receiving system transfer point no. 2).	Title I Condition: a 1997&2000 action that avoided review under CFR 52.21 set this
Pressure Drop: greater than or equal to 0.5 inches of water column and less than or equal to 8.0 inches of water column for CE 143 (fabric filter) that controls SV 194 for EU 393 & EU 394 (limestone receiving system dump pocket & transfer point no. 1).	Title I Condition: a 1997&2000 action that avoided review under CFR 52.21 set this
Liquid Flow Rate: greater than or equal to 25 gallons/minute and less than or equal to 45 gallons/minute for CE 070 (wet scrubber) that controls SV 084 for EU 395 (limestone receiving system transfer point no. 2).	Title I Condition: a 1997&2000 action that avoided review under CFR 52.21 set this
C. CONTROL EQUIPMENT MONITORING	hdr
Gas Stream Pressure Drop: Monitor and record as least once every day when in operation for CE 070 and CE 143.	Title I Condition: a 1997&2000 action that avoided review under CFR 52.21 set this
Liquid Flow Rate: Monitor and record as least once every day when in operation for CE 070.	Title I Condition: a 1997&2000 action that avoided review under CFR 52.21 set this
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) for SV 194 once daily using a checklist that at a minimum contains the information required in Appendix B. If the Permittee uses for CE 143 a broken bag detector approved by the MPCA, the Permittee does not need to conduct visible emissions checks for SV 194.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
D. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 365 days after 11/30/2004 on one stack to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-52**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: SV 104 L3 Cooler Vent Stack**Associated Items:** EU 227 L3 Cooler Vent Stack

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0710, subp. 1(A)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0710, subp. 1(B)
B. OPERATION REQUIREMENTS	hdr
Process Monitoring: the visual emissions observer in the facility staff shall check stack visible emissions (opacity) once daily using a checklist that at a minimum contains the information required in Appendix B.	Minn. R. 7007.0800, subp. 4(D); 14; 16(J)
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 365 days after 11/30/2004 to measure PM and Opacity emissions.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each year following Initial Performance Test to measure PM and Opacity, if Line 3 utilization for that 12-month period is 50% or higher. (Line 3 utilization is 100%, if its kiln burner is fired for 8760 hours in the 12-month period, regardless of the rate of heat input or the rate of green ball feed.) However, Performance Test must be conducted at least ONCE for each 60 month period following Initial Performance Test.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Performance Test	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-53**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: SV 122 L4 Conveyor Transfer 041-046 to 042 Belts**Associated Items:** EU 264 L4 Conveyor Transfer Feeder

EU 266 L4 Conveyor Transfer 041/046 to 042 Belts

EU 267 L4 Conveyor Transfer 041/046 to 042 Belts

EU 399 L4 Pellet Scrn Fine Belt

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.05 grams/dry standard cubic meter (0.022 grains/dry standard cubic foot) of exhaust gas on and after the date on which the performance test required is completed.	40 CFR 60.382(a); Minn. R. 7011.2700
Opacity: less than or equal to 10 percent opacity using 6-minute average for any process fugitive emissions on and after the 60th day after achieving the maximum production rate at which EU 399 and the screen at EU 264 will be operated, but not later than 180 days after the initial startup of EU 399 and the screen at EU 264.	40 CFR 60.382(b); Minn. R. 7011.2700
B. POLLUTION CONTROL EQUIPMENT LIMITS	hdr
Liquid Flow Rate: greater than or equal to 240 gallons/minute using 24-hour Rolling Average .	Minn. R. 7017.2025, subp. 3
C. POLLUTION CONTROL EQUIPMENT REQUIREMENTS	hdr
Gas Stream Pressure Drop: The Permittee shall install, calibrate, maintain, and operate a monitoring device for the wet scrubber (CE 106) for the continuous measurement of the change in pressure of the gas stream through the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within 250 Pascals (1 inch water) gauge pressure, plus or minus; and must be calibrated on an annual basis in accordance with manufacturer's instructions.	40 CFR 60.384(a); Minn. R. 7011.2700
Record Gas Stream Pressure Drop and Liquid Flow Rate for CE 106 each day in operation.	Minn. R. 7011.0800
Liquid Flow Rate: The Permittee shall install, calibrate, maintain, and operate a monitoring device for the wet scrubber (CE106) for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within 5%, plus or minus, of design scrubbing liquid flow rate; and must be calibrated on an annual basis in accordance with manufacturer's instructions.	40 CFR 60.384(b); Minn. R. 7011.2700
D. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 60 days after achieving maximum capacity but not later than 180 days after initial startup of the affected facility (EU 399 and the screen at EU 264) to determine Total Particulate Matter emissions.	40 CFR 60.385(a); Minn. R. 7011.2700
Performance Test Pre-test Meeting: due 7 days before Performance Test.	Minn. R. 7017.2030, subp. 4
The Permittee shall record the measurements of both the change in pressure of the gas stream across the wet scrubber (CE 106) and the scrubbing liquid flow rate during the Initial Performance Test of the wet scrubber and at least weekly thereafter.	40 CFR 60.385(b); Minn. R. 7011.2700

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-54**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: SV 131 L5 Conveyor Transfer 041-046 to 042 Belts**Associated Items:** EU 285 L5 Conveyor Transfer Feeder (B4 L5 hygiene)

EU 287 L5 Conveyor Transfer 041/046 to 042 Belts

EU 288 L5 Conveyor Transfer 041/046 to 042 Belts

EU 400 L5 Pellet Scrn Fine Belt

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.05 grams/dry standard cubic meter (0.022 grains/dry standard cubic foot) of exhaust gas on and after the date on which the performance test required is completed.	40 CFR 60.382(a); Minn. R. 7011.2700
Opacity: less than or equal to 10 percent opacity using 6-minute average for any process fugitive emissions on and after the 60th day after achieving the maximum production rate at which the screen at EU 285 will be operated, but not later than 180 days after the initial startup of the screen at EU 285.	40 CFR 60.382(b); Minn. R. 7011.2700
B. POLLUTION CONTROL EQUIPMENT REQUIREMENTS	hdr
Gas Stream Pressure Drop: The Permittee shall install, calibrate, maintain, and operate a monitoring device for the wet scrubber (CE 116) for the continuous measurement of the change in pressure of the gas stream through the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within 250 Pascals (1 inch water) gauge pressure, plus or minus; and must be calibrated on an annual basis in accordance with manufacturer's instructions.	40 CFR 60.384(a); Minn. R. 7011.2700
Liquid Flow Rate: The Permittee shall install, calibrate, maintain, and operate a monitoring device for the wet scrubber (CE116) for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within 5%, plus or minus, of design scrubbing liquid flow rate; and must be calibrated on an annual basis in accordance with manufacturer's instructions.	40 CFR 60.384(b); Minn. R. 7011.2700
Record Gas Stream Pressure Drop and Liquid Flow Rate for CE 116 each day in operation.	Minn. R. 7011.0800
C. PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 60 days after achieving maximum capacity, but not later than 180 days after initial startup of the affected facility (the screen at EU 285) to determine Total Particulate Matter emission. {Please Note: Air Emission Permit No. 13700005-013 has 2 Initial Performance Test requirements for SV 131 - one before the Industrial Hygiene Upgrade Project and the other after the Industrial Hygiene Upgrade Project.}	40 CFR 60.385(a); Minn. R. 7011.2700
Performance Test Pre-test Meeting: due 7 days before Performance Test.	Minn. R. 7017.2030, subp. 4
The Permittee shall record the measurements of both the change in pressure of the gas stream across the wet scrubber (CE 116) and the scrubbing liquid flow rate during the Initial Performance Test of the wet scrubber and at least weekly thereafter.	40 CFR 60.385(b); Minn. R. 7011.2700

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-55**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: SV 191 Carpenters Shop**Associated Items:** EU 391 Carpenters Shop

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-56**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: SV 192 Paint Shop Booth**Associated Items:** EU 392 Paint Shop Booth

What to do	Why to do it
A. POLLUTANT LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-57**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: SV 195 Hill Wood Products system**Associated Items:** EU 396 Hill Wood Products system

What to do	Why to do it
Process Throughput: less than or equal to 220,000 tons/year using 12-month Rolling Sum of wood waste. The amount of wood waste received shall be calculated by the 15th of each month for the previous 12-month period. A record of the amount of wood waste received shall be kept on a daily basis.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR 52.21; and Minn. R. 7007.3000
Total Particulate Matter: greater than or equal to 90 percent capture efficiency and less than 0.54 lb/hr at SV 195 after control by CE 144 (fabric filter)	Title I Condition: Limit to avoid classification as a major modification under 40 CFR 52.21; and Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 90 percent capture efficiency and less than 0.32 lb/hr at SV 195 after control by CE 144 (fabric filter)	Title I Condition: Limit to avoid classification as a major modification under 40 CFR 52.21; and Minn. R. 7007.3000
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Monitoring: The visible emissions observer on the facility staff shall check stack visible emissions (opacity) once daily using a checklist that at a minimum contains the information required in Appendix B.	Minn. R. 7007.0800, subp. 4(D), 14, and 16(J)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-58**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: MR 001 NOx & SO2 CEMS at Line 3 Waste Gas Stack (SV 103)**Associated Items:** CE 146 Wet Scrubber-High Efficiency

GP 009 Agglomerator Line 3

SV 103 L3 Waste Gas Stack

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (See additional CEMS requirements in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 002 through MR 005; and in Table B)	hdr
Initial Startup of the Monitor: due 30 days after Permit Issuance. Monitor is the continuous emission monitoring system (CEMS), which is defined as the total equipment used to sample, condition (if applicable), analyze, and provide a permanent record of emissions of NOx and SO2 in lb/hr.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1006.
CEM Certification Test: due 90 days after Excess Emissions/Downtime Reports (EER's) are first required. The first EER is due 30 days after the end of the calendar quarter following Permit Issuance. Follow the Performance Specifications listed in 40 CFR 60, Appendix B. Note that some changes that affect the CEMS may require recertification.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1050, subp. 1.
CEMS Cylinder Gas Audit (CGA): due before end of each calendar quarter following CEM Certification Test, except that a CGA is not required during any calendar half year in which a RATA was performed. The initial CGA must be performed within 80 days following certification of the CEMS. The CGAs shall be conducted at least three months apart but no more than eight months apart. A CGA shall be conducted according to the procedures in 40 CFR 60, Appendix F, section 5.1.2. If the monitored emission unit was operated for less than 24 hours during the calendar half year, a CGA is not required for that calendar half year.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 4.
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEM Certification Test. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emission unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR 60, Appendix F, section 5.1.1.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 5.
Excess Emissions/Downtime Reports (EER's): due 30 days after end of each calendar quarter following Initial Startup of the Monitor. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e., during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypass during the quarter. { This is a reminder; the same requirement can be found in Table B of this permit. }	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1110, subp. 1 and 2.

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-59**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: MR 002 NOx & SO2 CEMS at Line 4 Waste Gas Stack (SV 118)**Associated Items:** CE 103 Wet Scrubber-High Efficiency w/o Lime

GP 010 Agglomeration Lines 4 & 5

SV 118 L4 Waste Gas Stack

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (See additional CEMS requirements in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 001, and MR 003 through MR 005; and in Table B)	hdr
Initial Startup of the Monitor: due 30 days after Permit Issuance. Monitor is the continuous emission monitoring system (CEMS), which is defined as the total equipment used to sample, condition (if applicable), analyze, and provide a permanent record of emissions of NOx and SO2 in lb/hr.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1006.
CEM Certification Test: due 90 days after Excess Emissions/Downtime Reports (EER's) are first required. The first EER is due 30 days after the end of the calendar quarter following Permit Issuance. Follow the Performance Specifications listed in 40 CFR 60, Appendix B. Note that some changes that affect the CEMS may require recertification.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1050, subp. 1.
CEMS Cylinder Gas Audit (CGA): due before end of each calendar quarter following CEM Certification Test, except that a CGA is not required during any calendar half year in which a RATA was performed. The initial CGA must be performed within 80 days following certification of the CEMS. The CGAs shall be conducted at least three months apart but no more than eight months apart. A CGA shall be conducted according to the procedures in 40 CFR 60, Appendix F, section 5.1.2. If the monitored emission unit was operated for less than 24 hours during the calendar half year, a CGA is not required for that calendar half year.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 4.
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEM Certification Test. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emission unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR 60, Appendix F, section 5.1.1.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 5.
Excess Emissions/Downtime Reports (EER's): due 30 days after end of each calendar quarter following Initial Startup of the Monitor. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e., during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypass during the quarter. { This is a reminder; the same requirement can be found in Table B of this permit. }	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1110, subp. 1 and 2.

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-60**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: MR 003 NOx & SO2 CEMS at Line 5 Waste Gas Stack (SV 127)**Associated Items:** CE 113 Wet Scrubber-High Efficiency w/o Lime

GP 010 Agglomeration Lines 4 & 5

SV 127 L5 Waste Gas Stack

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (See additional CEMS requirements in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 001, MR 002, MR 004, and MR 005; and in Table B)	hdr
Initial Startup of the Monitor: due 30 days after Permit Issuance. Monitor is the continuous emission monitoring system (CEMS), which is defined as the total equipment used to sample, condition (if applicable), analyze, and provide a permanent record of emissions of NOx and SO2 in lb/hr.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1006.
CEM Certification Test: due 90 days after Excess Emissions/Downtime Reports (EER's) are first required. The first EER is due 30 days after the end of the calendar quarter following Permit Issuance. Follow the Performance Specifications listed in 40 CFR 60, Appendix B. Note that some changes that affect the CEMS may require recertification.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1050, subp. 1.
CEMS Cylinder Gas Audit (CGA): due before end of each calendar quarter following CEM Certification Test, except that a CGA is not required during any calendar half year in which a RATA was performed. The initial CGA must be performed within 80 days following certification of the CEMS. The CGAs shall be conducted at least three months apart but no more than eight months apart. A CGA shall be conducted according to the procedures in 40 CFR 60, Appendix F, section 5.1.2. If the monitored emission unit was operated for less than 24 hours during the calendar half year, a CGA is not required for that calendar half year.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 4.
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEM Certification Test. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emission unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR 60, Appendix F, section 5.1.1.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 5.
Excess Emissions/Downtime Reports (EER's): due 30 days after end of each calendar quarter following Initial Startup of the Monitor. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e., during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypass during the quarter. { This is a reminder; the same requirement can be found in Table B of this permit. }	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1110, subp. 1 and 2.

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-61**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: MR 004 NOx & SO2 CEMS at Line 6 Waste Gas Stack (SV 144)**Associated Items:** CE 126 Wet Scrubber-High Efficiency w/o Lime

GP 011 Agglomeration Lines 6 & 7 (Action 007)

SV 144 L6 Waste Gas Stack

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (See additional CEMS requirements in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 001 through MR 003, and MR 005; and in Table B)	hdr
Initial Startup of the Monitor: due 30 days after Permit Issuance. Monitor is the continuous emission monitoring system (CEMS), which is defined as the total equipment used to sample, condition (if applicable), analyze, and provide a permanent record of emissions of NOx and SO2 in lb/hr.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1006.
CEM Certification Test: due 90 days after Excess Emissions/Downtime Reports (EER's) are first required. The first EER is due 30 days after the end of the calendar quarter following Permit Issuance. Follow the Performance Specifications listed in 40 CFR 60, Appendix B. Note that some changes that affect the CEMS may require recertification.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1050, subp. 1.
CEMS Cylinder Gas Audit (CGA): due before end of each calendar quarter following CEM Certification Test, except that a CGA is not required during any calendar half year in which a RATA was performed. The initial CGA must be performed within 80 days following certification of the CEMS. The CGAs shall be conducted at least three months apart but no more than eight months apart. A CGA shall be conducted according to the procedures in 40 CFR 60, Appendix F, section 5.1.2. If the monitored emission unit was operated for less than 24 hours during the calendar half year, a CGA is not required for that calendar half year.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 4.
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEM Certification Test. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emission unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR 60, Appendix F, section 5.1.1.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 5.
Excess Emissions/Downtime Reports (EER's): due 30 days after end of each calendar quarter following Initial Startup of the Monitor. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e., during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypass during the quarter. { This is a reminder; the same requirement can be found in Table B of this permit. }	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1110, subp. 1 and 2.

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-62**

12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Subject Item: MR 005 NOx & SO2 CEMS at Line 7 Waste Gas Stack (SV 151)**Associated Items:** CE 136 Wet Scrubber-High Efficiency w/o Lime

GP 011 Agglomeration Lines 6 & 7 (Action 007)

SV 151 L7 Waste Gas Stack

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (See additional CEMS requirements in Table A under Subject Item: Total Facility, Section F, and Subject Items MR 001 through MR 004; and in Table B)	hdr
Initial Startup of the Monitor: due 30 days after Permit Issuance. Monitor is the continuous emission monitoring system (CEMS), which is defined as the total equipment used to sample, condition (if applicable), analyze, and provide a permanent record of emissions of NOx and SO2 in lb/hr.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1006.
CEM Certification Test: due 90 days after Excess Emissions/Downtime Reports (EER's) are first required. The first EER is due 30 days after the end of the calendar quarter following Permit Issuance. Follow the Performance Specifications listed in 40 CFR 60, Appendix B. Note that some changes that affect the CEMS may require recertification.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1050, subp. 1.
CEMS Cylinder Gas Audit (CGA): due before end of each calendar quarter following CEM Certification Test, except that a CGA is not required during any calendar half year in which a RATA was performed. The initial CGA must be performed within 80 days following certification of the CEMS. The CGAs shall be conducted at least three months apart but no more than eight months apart. A CGA shall be conducted according to the procedures in 40 CFR 60, Appendix F, section 5.1.2. If the monitored emission unit was operated for less than 24 hours during the calendar half year, a CGA is not required for that calendar half year.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 4.
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEM Certification Test. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emission unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR 60, Appendix F, section 5.1.1.	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1170, subp. 5.
Excess Emissions/Downtime Reports (EER's): due 30 days after end of each calendar quarter following Initial Startup of the Monitor. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e., during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypass during the quarter. { This is a reminder; the same requirement can be found in Table B of this permit. }	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1110, subp. 1 and 2.

TABLE B: SUBMITTALS**B-1** 12/22/08

Facility Name: US Steel Corp - Minntac
Permit Number: 13700005 - 005

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

Send any application for a permit or permit amendment to:

AQ Permit Technical Advisor
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**B-2** 12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Fugitive Control Plan	<p>due 60 days after 02/26/2003 for approval by the commissioner. The plan shall identify all fugitive emission sources, primary and contingent control measures, and record keeping. The Permittee shall follow the actions and record keeping specified in the control plan. The commissioner may require additions or changes to the O&M plan when granting approval. The Permittee will be given an opportunity to comment on any required additions or changes to the plan before the commissioner grants approval of the plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the permittee is out of compliance with Minn. R. 7011.0150 or the fugitive emission control plan, then the permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors.</p> <p>The plan shall incorporate tailings basin emissions control measures required by the September 17, 1999, Stipulation Agreement, with changes approved by the Commissioner.</p>	Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup of EU 399 and the screen at EU 264.	SV122
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup of the last installed traveling grate preheat Low NOx Burner(s) of all five agglomerator lines (Lines 3, 4, 5, 6, and 7). The Permittee shall list individual dates of initial startup of Low NOx Burners in the notice.	Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup of the screen at EU 285.	SV131
Notification of the Date Construction Began	due 30 days after Start Of Construction. Submit the name and number of each unit and the date construction of each unit began (EU 399 and the screen at EU 264).	SV122
Notification of the Date Construction Began	due 30 days after Start Of Construction. Submit the name and number of each unit and the date construction of each unit began (the screen at EU 285).	SV131
Operation and Maintenance Plan	due 120 days after 02/26/2003 for review and approval by the commissioner. The O&M plan shall identify all air pollution control equipment, a preventative maintenance program for that equipment, description of corrective actions to be taken in the event of a malfunction or breakdown, description of the employee training program, and the records kept to demonstrate plan implementation. The commissioner may require additions or changes to the O&M plan when granting approval. The Permittee will be given an opportunity to comment on any required additions or changes to the plan before the commissioner grants approval of the plan.	Total Facility
Performance Test Notification (written)	due 30 days before Performance Test	GP003, GP005, GP007, GP009, GP010, GP011, GP012, GP013, GP014, GP015, GP016, GP017, GP018, GP019, GP020, GP021, GP022, GP023, GP024, GP025, GP026, GP028, SV104, SV122, SV131

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS
B-3 12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Performance Test Plan	due 30 days before Performance Test	GP003, GP005, GP007, GP009, GP010, GP011, GP012, GP013, GP014, GP015, GP016, GP017, GP018, GP019, GP020, GP021, GP022, GP023, GP024, GP025, GP026, GP028, SV104, SV122, SV131
Performance Test Report - Microfiche Copy	due 105 days after Performance Test	GP003, GP005, GP007, GP009, GP010, GP011, GP012, GP013, GP014, GP015, GP016, GP017, GP018, GP019, GP020, GP021, GP022, GP023, GP024, GP025, GP026, GP028, SV104, SV122, SV131
Performance Test Report	due 45 days after Performance Test	GP003, GP005, GP007, GP009, GP010, GP011, GP012, GP013, GP014, GP015, GP016, GP017, GP018, GP019, GP020, GP021, GP022, GP023, GP024, GP025, GP026, GP028, SV104, SV122, SV131
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after CEMS Relative Accuracy Test Audit (RATA).	MR001, MR002, MR003, MR004, MR005
Submittal of Permit Application	due 360 days after Effective Date of Permit the Permittee shall submit parameter ranges, along with rationale for their development, in a permit amendment application, to incorporate the air pollution control equipment parameter ranges (scrubber water flow and/or pressure drop) into this permit. The rationale for choosing these ranges shall include the control equipment manufacturer's suggested ranges and any reasons for deviating from the recommended ranges.	Total Facility
Submittal of Permit Application	due 60 days after receipt of written MPCA approval of NOx emission control pilot testing results, for a major permit amendment to install a control technology at one Agglomerator line for a full scale demonstration. The Permittee shall submit a schedule of equipment installation, anticipated startup, and final reporting of the demonstration within 60 days of receipt of the Permit from the MPCA.	Total Facility
Submittal of Permit Application	due 60 days after receipt of written MPCA approval of the final report on control technology demonstration, for a major permit amendment to install the demonstrated control technology on the remaining Agglomerator lines. The Permittee shall submit a schedule of equipment installation and anticipated startup of individual lines within 60 days of receipt of the Permit from the MPCA.	Total Facility
Submittal	due 1096 days after 02/26/2003 to provide modeling data as specified in MPCA Guidance for Modeling Information Request. The modeling information is for data collection purposes, no modeling analysis is required at this time. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Total Facility
Testing Frequency Plan	due 60 days after Initial Performance Test. For each of Lines 4 and 5, the plan shall specify a testing frequency for fluorides, CO, and VOC based on the test data and MPCA guidance. Future performance tests based on one-year (12-month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	GP010

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**B-4** 12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

Testing Frequency Plan	due 60 days after Initial Performance Test. For each of Lines 6 and 7, the plan shall specify a testing frequency for fluorides, CO, and VOC based on the test data and MPCA guidance. Future performance tests based on one-year (12-month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	GP011
Testing Frequency Plan	due 60 days after Initial Performance Test. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	GP007, GP014, GP015, GP016, GP019, GP021, GP023, GP024, GP025, GP026, GP028
Testing Frequency Plan	due 60 days after Initial Performance Test. The plan shall specify a testing frequency for fluorides, CO, and VOC based on the test data and MPCA guidance. Future performance tests based on one-year (12-month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	GP009

TABLE B: RECURRENT SUBMITTALS**B-5** 12/22/08

Facility Name: US Steel Corp - Minntac

Permit Number: 13700005 - 005

What to send	When to send	Portion of Facility Affected
Ambient Air Monitoring Report	due 45 days after end of each calendar quarter following Effective Date of Permit: total suspended particulate matter (TSP) monitoring reports to determine compliance with the Minnesota Ambient Air Quality Standards for TSP. Ambient monitoring will be conducted for a 3 year period, as provided by Attachment B to the September 17, 1999, Stipulation Agreement. Monitoring may be extended if violations occur.	Total Facility
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed. A CGA is not required during any calendar quarter in which a RATA was performed.	MR001, MR002, MR003, MR004, MR005
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Initial Startup of the Monitor. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e., during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypass during the quarter.	Total Facility
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Initial Performance Test. The Permittee shall report occurrences when the measurements of the wet scrubber gas stream pressure drop (or gain) and scrubbing liquid flow differ by more than 30%, plus or minus, from the average obtained during the most recent performance test.	SV122, SV131
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 02/26/2003. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	Total Facility
Semiannual Deviations Report	due before end of each half-year following Initial Performance Test. The Permittee shall report occurrences when the measurements of gas stream pressure drop (or gain) and liquid flow rate of CE 070 differ by more than 30%, plus or minus, from the average obtained during the most recent performance test.	GP028
Compliance Certification	due 31 days after end of each calendar year starting 02/26/2003 (for the previous calendar year). To be submitted on a form approved by the Commissioner <, both to the Commissioner, and to the U.S. EPA regional office in Chicago>. This report covers all deviations experienced during the calendar year. < The EPA copy shall be sent to: Mr. George Czerniak, Chief, Air Enforcement and Compliance Assurance Branch, Air and Radiation Division, EPA Region V, 77 West Jackson Boulevard, Chicago, Illinois 60604>	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year starting 02/26/2003 (April 1). To be submitted on a form approved by the Commissioner.	Total Facility

APPENDIX MATERIAL

Facility Name:US Steel Corp - Minntac

Permit Number: 13700005-005

1. Types of Biomass Authorized for the Rotary Kiln Burner at Minntac
2. Visible Emission Checklists (for Permit No. 13700005-001)
3. Minntac Modeling Parameters (for Permit No. 13700005-004)

1. Types of Biomass Authorized for the Rotary Kiln Burner at Minntac

The following materials are allowed to be fed to the rotary kiln burner at Agglomerator Lines 3 through 7 at U.S. Steel Minntac.

Wood based

- Cedar chips without bark attached
- Cedar chips with some bark attached
- Pine chips without bark attached
- Planed chips from clean unadulterated wood
- Bark
- Logging residue
- Sawdust from clean unadulterated wood
- Sander dust from clean unadulterated wood

Agricultural Based

- Millet hulls
- Sunflower hulls
- Sunflower screenings
- Corn stover
- Rice hull
- Oat hulls
- Distiller's grain
- Flour dust screenings
- Elevator screenings of wheat, soy, and oat
- Hay
- A small portion of unspecified types of grasses

2. VISIBLE EMISSION CHECKLISTS (for Permit No. 13700005-001)

Daily Stack Emissions Inspection

Fabric filters (baghouses): The units that are equipped with MPCA-approved broken bag detectors are not subject to daily stack emission inspection.

Visible Emission Checklist(s):

- 1) Initials of observer;
- 2) Date and time of observation;
- 3) Indication of process and control equipment performance, either “requires attention,” or “does not require attention.” This determination is based upon an observed change in visible emission characteristics from that observed when this source and its pollution control equipment are properly operated and maintained. A change in visible emission characteristics will be indicative of “requires attention.”
- 4) Facility identification of emission unit;
- 5) Short description of emission unit.

The Permittee shall retain a central facility checklist of the following information to support the Visible Emission Checklist(s):

- 1) Description of investigation and corrective actions completed for each “requires attention” observation marked on the Visible Emission Checklist(s);
- 2) Weather conditions (air temperature, cloud cover, wind speed and direction, precipitation);
- 3) A key which will enable an inspector to cross reference the identification numbers or names used on the Visible Emission Checklist(s) to the Emission Unit (EU), Stack/Vent (SV), and Control Equipment (CE) numbers used in the Part 70 permit.

An example checklist & instructions

Visual inspection of each stack is to be recorded on day shift Sunday through Saturday.

Record "OK" if equipment does not require attention.

Record "RA" if equipment requires attention to reduce visible emissions from the stack.

Record actions taken to remedy problems that require attention ("RA" items).

Record "Moist" if moisture plume limits visible emissions observations.

If the unit is down for more than one hour and the service area is active, notify the

Environmental Engineer with the following information: Unit number, time it went down, why it went down, and when it is expected to be operating again.

At the end of each week, send completed inspection form to Environmental Engineer to file.

EU	GP	SV	Operator ID	Service Area	Sun	Mon	Tue	Wed	Thu	Fri	Sat
				Year	Date →						
					Time →						
					Initials →						

Record corrective actions or comments for each "RA." Also record pressure drop and/or water pressure/flow for each unit that moisture plume interferes with the observation.

Date ____/____/____ Employee _____ # _____

Fugitive Emission Sources

FS	Description	FS	Description
1	Surface overburden stock pile	15	"Group 13?" screened pellets stock pile
2	Unpaved road for heavy-duty vehicles	16	"Group 13?" screened fines stock pile
3	Unpaved road for secondary vehicles	17	Step I/II crude ore stock pile
6	Ballast feed rock stock pile-east pit	18	Step III crude ore stock pile
7	Ballast feed rock stock pile-west pit	20	Step II concentrate stock pile
8	Ballast product rock stock pile-east pit	21	Step III concentrate stock pile
9	Ballast product rock stock pile-west pit	22	Step I/II pellet main stock pile
10	Ballast fines rock stock pile-east pit	23	Step I/II pellet auxiliary stock pile
11	Ballast fines rock stock pile-west pit	24	Step III pellet stock pile

3. Minntac Modeling Parameters for the Indurating Process Modification

(for Permit No. 13700005-004; still relevant to Permit No. 13700005-005)

June 7, 2005 Class I increment model inputs (with 13,300 ton NO_x /yr)

Line 3 values are for old configuration – that was without a wet scrubber or a multiclone.

Stack Information			Emissions, lb/hr		Modeled Parameters			
MPCA ID	Plant ID	Description	PM ₁₀ *	NO _x	Stack Height**, ft	Stack Exit Temp, °F	Velocity at Exit, ft/min	Stack Exit Diameter, ft
SV 103	247-03-1	Line 3 waste gas	190	484	116	224	4825.6	10
SV 118	247-04-1	Line 4 waste gas	68.2	670	136	125	3925.6	14
SV 127	247-05-1	Line 5 waste gas	68.2	670	136	125	3925.6	14
SV 144	247-06-1	Line 6 waste gas	81.6	670	142.25	110	2238.1	16
SV 151	247-07-1	Line 7 waste gas	81.6	670	142.25	110	2238.1	16

* Both filterable and condensable are included in the PM₁₀ emission rate modeled.

** Stack height above the ground.

January 24, 2005 Regional Haze model inputs (post-modification)

Line 3 values are for old configuration – that was without a wet scrubber or a multiclone.

Post-modification with NO_x at 13,300 ton/yr*	Line 3	Line 4	Line 5	Line 6	Line 7
SO ₂ (lb/hr)	224.7	174.7	174.7	272.7	272.7
Primary SO ₄ (lb/hr)	26.9	22.3	22.3	26.8	26.8
NO _x (lb/hr)	484.0	670.0	670.0	670.0	670.0
PM ₁₀ filterable (lb/hr)	162.2	44.2	44.2	52.8	52.8
PM ₁₀ condensable (lb/hr)	27.8	24.0	24.0	28.8	28.8
Organic carbon (lb/hr)	1.0	1.7	1.7	2.0	2.0
Elemental carbon (lb/hr)	0.5	0.7	0.8	3.5	3.5
Other particulate (lb/hr)	161.8	43.5	43.4	49.3	49.3

* Annual emissions for NO_x are based on hourly averages calculated on a 12-month rolling sum.

January 24, 2005 Regional Haze model inputs (pre-modification)

Pre-modification Annual Emissions	Line 3	Line 4	Line 5	Line 6	Line 7
SO ₂ (lb/hr)	0.0	192.0	190.0	318.0	315.0
Primary SO ₄ (lb/hr)	0.0	36.0	25.0	17.0	16.0
NO _x (lb/hr)	0.0	569.0	528.0	305.0	305.0
PM ₁₀ filterable (lb/hr)	0.0	470.0	320.0	34.0	33.0
PM ₁₀ condensable (lb/hr)	0.0	38.0	26.0	18.0	18.0
Organic carbon (lb/hr)	0.0	0.9	0.6	1.3	1.3
Elemental carbon (lb/hr)	0.0	0.0	0.0	1.7	1.7
Other particulate (lb/hr)	0.0	470.0	320.0	32.3	31.3

TECHNICAL SUPPORT DOCUMENT FOR AIR EMISSION PERMIT NO. 13700005-005

This technical support document (TSD) is intended for all parties interested in the permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp.1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the permit.

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC: 1011)
U.S. Steel Corp. Minnesota Ore Operations P.O. Box 417 Mountain Iron, MN 55768	Minntac County Highway 102 Mountain Iron; St. Louis County
Contact: Chrissy Bartovich, Environment Control Engineer, Phone: (218) 749-7364	

1.2. Description of the This Permit Action

This permit action, PER 005, is to address the indurating process modification, retroactively, under federal Prevention of Significant Deterioration (PSD; 40 CFR § 52.21) regulations.

1.2.1. Description of the Facility

Permittee owns and operates a taconite mine and processing facility, known as Minntac, at County Highway 102, on the Mesabi Range north of the City of Mountain Iron, St. Louis County, Minnesota.

Taconite is a rock bearing from 15 to 30 percent magnetic iron particles (magnetite). The iron ore is mined in an open pit, and reduced in size by a series of crushers until it has a powdery consistency. Iron oxide concentrate is separated magnetically, while the remaining portion of the mined ore (tailings) is sent to a tailings disposal basin. Limestone and/or dolomite (fluxstone) and bentonite (binder) are added to the concentrate and the mixture is formed into round "green balls (pellets)" in a balling drum. The green balls are heat hardened in an indurating process (agglomerator or grate-kiln) line, which consists of a traveling grate, a rotary kiln, and a horizontal rotary hearth (commonly called annular cooler). Finished taconite pellets are stored for transport to blast iron furnaces. While the main product of the Minntac facility is fluxed pellets which are used in blast furnaces to make molten iron, other products such as iron ore concentrate, blast furnace trim, and railroad ballast are made for special customers.

The Minntac facility was built in three successive stages or steps. The first taconite pellets were produced by the Step I facility in 1967. When Step II (1972) and Step III (1978) were added, the facility's pellet-making capacity was tripled.

1.2.2. History of the Modification and Efforts to Respond

This permit amendment addresses the indurating process modification that Minntac completed between 1987 and 1989 without receiving the required Prevention of Significant Deterioration (PSD) permit. This modification added auxiliary burners in the traveling grate at indurating lines 3 (Step I), 4 and 5 (Step II), and 6 and 7 (Step III) to facilitate production of fluxed pellets, a new product at that time. During this period, the Permittee also requested permission to test burn wood and oat hulls using some of the kiln burners. After the MPCA granted the request to test these fuels, it found out that permanent equipment had been installed in order to burn these solid materials. The MPCA alleged that these actions also violated the PSD regulations.

On September 30, 1991, Minntac submitted a PSD air emission permit application as required by a stipulation agreement between USX Corporation and the MPCA that was signed on May 15, 1991. This application was supplemented and revised on several occasions.

Personnel changes at the MPCA and Minntac slowed work on public noticing the permit. In 1993 and 1994, Minntac conducted a number of performance testing. Between 1994 and 1998, MPCA staff and Minntac reviewed emissions data and Minntac's Best Available Control Technology (BACT) analysis and prepared the draft PSD permit for public notice.

On December 2, 1998 the MPCA placed the draft permit on public notice. The draft permit included a 24-hour block average nitrogen oxides (NO_x) emission limit of 5,964 lb/hr from all five furnaces combined (*i.e.*, 25,077 ton/yr), based on combustion control as BACT (the emission limit was based in part on the 1993-1994 process and NO_x emission study). The draft permit required continuous emission monitoring systems (CEMS). The air quality analyses that supported the draft permit, which were much simpler at that time, identified an adverse visibility impact to Class I areas. During the public notice period, the National Park Service (one of the two federal land managers, or FLMs) requested that the permitting action be halted and the BACT analysis be re-completed for evaluating Selective Catalytic Reduction (SCR) as BACT.

Between 1999 and December of 2004, the MPCA evaluated SCR as a control technology for NO_x. The MPCA determined that BACT was no control for the specific circumstance at the Minntac facility. Although SCR is technically feasible, it was eliminated as BACT due to excessive energy requirements to operate the system. Reheating waste gas stream to 700 °F to facilitate SCR operation would require an addition of 1.27 units of energy, if the energy needed in pellet induration is taken as 1 unit of energy. Control cost effectiveness varies widely: if all five agglomerator lines are fired with natural gas only, the total annualized cost for the SCR application would be \$7,035/ton NO_x removed at a fuel price of \$7/million BTU; for solid fuel and natural gas co-firing (coal and natural gas at the kiln burner of Lines 6 and 7; wood or oat hulls and natural gas at the kiln burner of Lines 3 through 5), annualized cost for the SCR application would be \$16,052/ton NO_x removed, at the fuel price of \$7/million BTU. Co-firing, which has been driven by the fuel market in recent years, causes less NO_x emissions.

In addition to the SCR evaluation, the MPCA analyzed all available NO_x emission and operating data. This analysis led to proposed phased, annual NO_x limits. The permit was then redrafted with these annual limits as Permit No. 13700005-004, which was placed on public notice, from December 17, 2004 through January 18, 2005. The PER 004 draft permit included:

- a 24-hour block average NO_x emission limit for all five furnaces combined, of 5,596 lb/hr;
- a 365-day rolling sum NO_x emission limit of 15,000 ton/yr for all five furnaces combined at Permit Issuance;
- a re-opening condition that, while a 365-day rolling sum NO_x emission limit of 13,300 ton/yr for all furnaces combined is to be effective 1/1/2010, a review with 3 year CEMS data will be conducted by the MPCA with input from FLMs to adjust this emission limit, if warranted;
- installation and operation of NO_x CEMS; and
- BACT emission limits for fluorides, CO, and VOC emissions.

The MPCA received comments during the comment period from the public (including FLMs) and the Permittee. The Permittee's comment that Line 3 might not be capable of meeting the 1.81 lb/hr limit for fluoride emissions (the waste gas stack then was only equipped with a "drop box" for gas cleaning) led the MPCA to decide not proceed further with the PER 004 draft permit; *i.e.*, that draft permit was not issued.

1.2.3. Current Permit Action 005

The current permit action revises NO_x and fluoride emission limits and conditions in PER 004 but keeps CO and VOC emission limits unchanged.

1.3. Description of the Activities Allowed by this Permit Action

PER 005 authorizes the following activities:

1. The installation and operation of auxiliary burners in the traveling grates. This is retroactive (or backward-looking PSD) approval for the installation that occurred between 1987 and 1989.
2. Increased capability of the kiln burner to burn alternative solid fuels. This is both a retroactive approval for clean wood, wood bark, sawdust, oat hull, and cornmeal, and a new approval for various other organic materials. A 1997 permit action authorized combustion at Lines 6 and 7 of wood, wood bark, and sawdust; a performance test was conducted at Line 5 on October 25, 2001 to support corn meal as a solid fuel option. These solid fuel options are now authorized in this permit for the kiln burner at all five lines to help reduce indurating NO_x formation. In addition, this permit authorizes the use of cedar chips without bark, cedar chips with some bark, pine chips without bark, planed chips from clean unadulterated wood, bark, logging residue, sawdust from clean unadulterated wood, sander dust from clean unadulterated wood, millet hulls, sunflower hulls, sunflower screenings, corn stover, rice hulls, oat hulls, distiller's grain, flour dust

screenings, elevator screenings of wheat, soy, and oats, hay and a small portion of unspecified types of grasses.

3. The upgrade of existing auxiliary burners in the traveling grates to Low NO_x burners.
4. The installation and operation of NO_x CEMS at the waste gas stack of Agglomerator Lines 3 through 7 to monitor hourly mass rates of NO_x and SO₂ emissions. (SO₂ is not a PSD pollutant for the indurating process modification.)

We do not anticipate the Permittee to pursue testing for new NO_x emission reduction control technologies before February 1, 2009, when control technology options for pilot testing and a pilot test schedule are due. Prior approval, if any, for testing of control technology options is therefore deferred to the upcoming reissuance of the Title V permit (which expired on February 26, 2008).

Nothing in this permit shall prevent the application of regulations whose effect is to reduce NO_x emissions from the facility.

1.3.1. MPCA's Commitment to Federal Land Managers by this Permit Action

PER 005 committed the MPCA to consult with National Park Service and U.S. Forest Service for approval of the Engineering Analysis Report, the schedule and NO_x control technologies selected for pilot testing, and the schedule and NO_x control technologies selected for full scale demonstration. These are related to the requirements in Table A, "Total Facility," Section F, of the permit.

1.4. Emission Data

Table 1. Summary of Emission Increases from the Indurating Process Modification

Pollutant	Post-Mod* PTE (TPY)	Pre-Mod* PTE (TPY)	Net Emissions Increase (TPY)	Significant Threshold Level for PSD (TPY)	PSD Review? (Yes or No)
NO _x at Permit Issuance	13,300		8,842		
NO _x by 2/1/2014	< 4,458	4,458	< 0	40	Yes **
CO	1,813	207	1,607	100	Yes
VOC	1,350	303	1,047	40	Yes
Fluorides	32.9	0	32.9	3	Yes
PM	1,978	6,447	-4,469	N/A now; was 25	No
Lead	0.885	0.526	0.358	0.6	No
Beryllium	0.0078	0.0227	-0.0149	0.0004	No
SO ₂	5,790	7,753	-1,963	40	No
PM ₁₀	1,768	2,134	-366	15	No

* The NO_x emission limits at Permit Issuance and by 2/1/2014 are placed as Post-Mod PTE. Post-Mod PTE values for PM are recalculated with the results of taconite MACT compliance testing (Aug. – Dec. 2006); Beryllium and PM₁₀ are adjusted with new PM data; Beryllium and Lead are also re-calculated using the results of Method 29 test conducted in October 2006. SO₂ reflect the effects of the particulate control wet scrubbers on Lines 4 and 5 (respective initial startup dates: 2/15/92 and 3/24/92) and the new wet scrubber at Line 3. Pre-Mod PTE is taken from USS letter dated 12/29/1993. See Attachment 2.

** NO_x has been reviewed under PSD. As explained in Section 2.1.2, this permit imposes emission limits and a goal (*a goal is a target for the Permittee, but is not intended to be an enforceable permit condition*) to eventually go beyond merely eliminating the net NO_x emission increase due to the indurating process modification (note that the baseline emission of 4,458 ton/yr was found to have modeled visibility impacts to federal Class I areas – see *discussion* in Section 2.2.2., just below Table 8 in this TSD). “Yes” in this column typically indicates BACT is required, pursuant to 40 CFR 52.21(j)(3). For NO_x, in this case, “Yes” means more than eliminating (a form of mitigation) the adverse impacts from the modification is required, pursuant to 40 CFR 52.21(p). See Section 2.2 for discussion.

Table 2. Total Facility* Potential to Emit Summary (Ton/year)

Pollutant	Potential to Emit
Particulate Matter (PM)	55,800
Nitrogen Oxides (NO _x) at Permit Issuance	15,400
by 2/1/2014	6,558
PM of 10 µm in size or smaller (PM ₁₀)	13,500
Sulfur Dioxide (SO ₂)	7,780
Carbon Monoxide (CO)	2,190
Volatile Organic Compounds (VOC)/Ozone	1,430
Fluorides	32.9
Lead	2.21
Beryllium	0.000168

* After Post-Mod PTE values in Table 1 above (for NO_x, 13,300 ton/yr) were entered into DELTA, total values under the header "Permit Allowable" were obtained and placed in this table.

Table 3. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD	Facility & Indurating Process Modification		
Part 70 Permit Program	✓		
Part 63 NESHAP	✓		

2. Regulatory and/or Statutory Basis

The existing Minntac facility is a major source under the *Part 70 Permit Program*.

The indurating process modification is subject to federal (EPA) and state (MPCA) air quality requirements. The federal air quality regulations include the National Ambient Air Quality Standards (NAAQS), New Source Review (NSR) including visibility impacts, New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAP). The state air quality regulations include the Minnesota Ambient Air Quality Standards (MAAQS) and the State Standards for Stationary Sources. The MPCA has been delegated the authority by the EPA to administer the federal NSPS, NESHAP and NSR regulations.

2.1. New Source Review (NSR)

New Source Review (NSR) is required prior to construction of major new sources or major modifications to existing sources. If a source is located in an area that does not meet NAAQS for one or more of the criteria pollutants emitted (i.e., is in a non-attainment area) then non-attainment NSR applies. Otherwise, Prevention of Significant Deterioration (PSD) NSR applies. In the case of Minntac's indurating process modification, the PSD regulations apply, as the facility is located in an area that is in attainment status for all criteria pollutants emitted. The physical changes and changes in the method of production *occurred* in the past, therefore, the PSD regulations apply retroactively.

Minntac's existing facility qualifies as a major source since it is a stationary source which emits, or has the potential to emit, 100 tons per year or more (for this source category) of any air pollutant subject to regulation under the Act.

As shown in Table 1, above, the indurating process modification exceeded the significant emission increase thresholds for NO_x, CO, VOC, and fluorides and is thus subject to PSD review for these pollutants. PSD review involves the following analyses:

- Best Available Control Technology (BACT) analysis;
- Class I Area Impact Analysis;
- Air Quality Analysis; and
- Additional Impacts Analysis.

2.1.1. Best Available Control Technology (BACT) Analysis

A major modification subject to PSD review is required to ensure that BACT is used for each pollutant for which there is a significant net emission increase. BACT is the maximum degree of emission reduction that can be achieved when determined on a case-by-case basis taking into account energy, environmental and economic impacts. BACT is selected using the five-step "Top-Down Process." Step 1 identifies all potential control technologies. In Step 2, any technically infeasible options are eliminated. Step 3 ranks the remaining technologies in order of decreasing control effectiveness. In Step 4, the remaining technologies are subject to (i) an energy impacts analysis, (ii) an economic impacts analysis and (iii) an environmental impacts analysis. Step 5 selects the top ranked technology remaining from Steps 3 and 4 as BACT.

For the indurating process modification at Minntac, the MPCA is not changing the BACT analysis done for NO_x emissions for PER 004. The MPCA is not proposing BACT limits for NO_x or SO₂ (SO₂ is not subject to review under PSD, as shown in Table 1). In fact, PER 004 did not set any BACT limit for NO_x or SO₂.

Minntac in its original BACT analysis identified low NO_x burner (LNB) as BACT for NO_x on indurating furnaces. Next, it stated that, while unproven, a staged combustion type of LNB application at the grate would with an estimated 10% reduction in NO_x emissions was closest to being an appropriate candidate for BACT (Bricmont report, March 1994). It also stated that a vitiated type (forcing inert gases into the combustion chamber to decrease temperature of the flame) of LNB application at both the kiln and the grate should not be considered as BACT.

The MPCA did not accept LNB as BACT for several reasons: 1) an LNB application *alone* would not reduce NO_x emissions much for the entire indurating furnace, not to mention that the kiln burner still would be the regular one; 2) LNB applications, of staged combustion type, vitiated type, or their combination, restrict air into the combustion chamber, which also serves as an oxidation reaction chamber for pellet induration that needs excess air for oxygen; 3) while older furnace burners might have been replaced with vendor-claimed low NO_x burners, they did not achieve NO_x emission reduction due improper configuration or outdated control practice.

This permit revises the BACT limits for fluoride emissions to reflect current operations. BACT limits for CO and VOC emissions remain the same in PER 005 as in PER 004. See Table 4 and Attachment 3.

The Permittee has added a multiclone and a venture-rod, recirculating wet scrubber to the waste gas stack at Line 3 since PER 004. As a result, “synthetic minor” limits on particulates (PM and PM₁₀) in PER 004, which were “Title I Condition: Used to restrict PTEs and the review under 40 CFR 52.21; Minn. R. 7007.0100, subp. 25(C),” are not needed in PER 005. Also, the alternative demonstration of compliance to Total Particulate Matter Limit, provided for GP 009 through PER 004 per Minn. R. 7011.0610, subp. 1(A)(1), is no longer needed in this permit.

Table 4. BACT Summary

Agglomerator	Line 3	Line 4	Line 5	Line 6	Line 7
Emission Units	223; 225; 226	259; 261; 262	280; 282; 283	313; 315; 316	332; 334; 335
BACT for Fluorides	Venturi-rod Wet Scrubber				
BACT for CO+VOC	Combustion Process Control				

How are BACT limits determined for emissions of fluorides?

BACT for fluoride emission control is wet scrubbing. See Table 4 and Attachment 3. Attachment 3 contains an incorrectly derived set of values as proposed fluoride emission limits. The correct fluoride emission limits are derived below.

Mass emission rate (lb fluorides/hr) is the multiplication product of the process throughput (LT pellets fired/hr) and the emission factor (lb fluorides/LT pellets fired). 1 long ton = 2240 lbs.

The hourly indurating process throughput data are derived from annual pellet production divided by annual operating hours for each of Lines 4 through 7 from 2003 through 2006 and for Line 3 from 2003 through 2005 (the air pollution control equipment upgrade at Line 3 in 2005 resulted in an approximately 13% increase in the process throughput at that line) using the 95% upper confidence level:

$$\bar{x} + t_{\alpha, n-1} s_{n-1} / \sqrt{n}$$

Where \bar{x} is the average (arithmetic mean) of the data; s_{n-1} is the sample standard deviation; n is the number of observations of the data; t is calculated based on the prescribed choice of Type I error tolerable (α , typically 0.05) and the *degree of freedom* (df, equal to n - 1) of the data.

The fluoride emission factor (3.78×10^{-3} lb fluorides/LT pellets fired) is derived from the results of 13 three-run stack tests *at the test run level* using the 95% upper prediction level:

$$\bar{x} + t_{\alpha, n-1} s_{n-1} \sqrt{1 + 1/n}$$

For a large n, df is also large, and the above algebraic expression becomes: $\bar{x} + z s_{n-1}$, where z is calculated from the standard normal distribution. More simply stated, the 95% *prediction interval* (between the lower and upper levels) tells you when your *next* data point, $n + 1$, would probably fall with 95% probability, for the given n data points. The 95% prediction interval is wider than the 95% *confidence interval*, as the latter deals with where the *mean value* would likely be found.

Multiplying a line's process throughput by the emission factor of 3.78×10^{-3} lb fluorides/LT pellets fired leads to 1.04 lb fluorides/hr for Line 3 and 1.62 lb fluorides/hr for any other line. See Table 5. Note that, although these values derived from hourly data, the MPCA set them as BACT limits and set the averaging time as 3 hours with stack testing as a method of compliance determination. The last footnote in Table 5 provides direct data comparisons to justify assigning the averaging time. See Attachment 6 for a complete derivation of the fluoride emission limits.

Table 5. BACT Limits on Fluoride Emissions^a

Indurating Line	Throughput LT/hr as 95% UCL ^b	Throughput Rate Adjustment Basis	Throughput Rate Adjusted, LT/hr	BACT Limit, lb fluorides/hr ^c
3	244	1.13	275	1.04
4	434	Ave of L4-L7	428	1.62
5	418	Ave of L4-L7	428	1.62
6	428	Ave of L4-L7	428	1.62
7	432	Ave of L4-L7	428	1.62

- Fluoride BACT limits proposed in the May 16, 2006 submittal (Attachment 3), "Revised Updated BACT Analysis for CO, VOC and Fluoride Emissions," are not accepted due to errors found in statistical calculations; the limits listed above can be found in Attachment 6. Note also that 1 long ton (LT) = 2240 lbs and 1 (short) ton = 2000 lbs.
- Upper confidence levels (UCL) of apparent hourly throughput rates are based on 2003 through 2006 annual pellet production and annual operating time at Lines 4 through 7; 2003 through 2005 at Line 3.
- Emission factor, 3.78×10^{-3} lb fluorides/LT pellets fired, is the 95% upper prediction level (UPL) of test run data (with n = 39). However, the BACT limits given here are to be treated as 3-hr averaged values. Why? 95% UCL of hourly process throughput rates for the 39 test runs is 423 LT/hr. 95% UPL of 13 averaged stack test (3-run averaged) fluoride emissions is 1.59 lb fluorides/hr. For Line 3, one may expect, $1.59 \text{ lb/hr} \times 275 \text{ LT/hr} \div 423 \text{ LT/hr} = 1.03 \text{ lb/hr}$ as the limit, 3-hr averaged. The BACT limit, 1.04 lb/hr, 3-hr averaged, reflects an increase of 0.97% of the expected value of 1.03 lb/hr. For any other line, one may expect, $1.59 \text{ lb/hr} \times 428 \text{ LT/hr} \div 423 \text{ LT/hr} = 1.60 \text{ lb/hr}$, as the limit, 3-hr averaged. The BACT limit, 1.62 lb/hr, 3-hr averaged, reflects an increase of 1.25% of the expected value of 1.60 lb/hr. Therefore, the BACT limits in this table and the 3-hr averaging time are appropriate. In the previous permit action (PER 004), Line 3 (still equipped with only a "drop box," not a multiclone or a wet scrubber) had a proposed fluoride emission limit of 1.81 lb/hr. Each of Lines 4 through 7 had a proposed fluoride emission limit of 0.616 lb/hr. These proposed limits do not reflect current production and waste gas wet scrubbing operations, according to MPCA staff review of the stack test results.

BACT limits on CO and VOC

As shown in Table 4, combustion process control is BACT for CO and VOC emission control at Lines 3 through 7. Attachment 3 provided BACT emission limits on CO and VOC in Table 6, which are the same as used in the December 1998 and PER 004 draft permits.

Table 6. BACT Emission Limits on Carbon Monoxide and Volatile Organic Compounds, lb/hr

Agglomerator	Line 3	Line 4	Line 5	Line 6	Line 7
CO	68.8	98.6	98.6	74.0	74.0
VOC	51.6	74.0	74.0	54.3	54.3

2.1.2. Class I Visibility Impacts and NO_x Emissions

The MPCA chose to set forth NO_x emission limits in this permit action pursuant to the requirements for addressing impacts to federal Class I areas in the PSD regulations, 40 CFR 52.21 (p), rather than the requirements for installation and operation of BACT, 40 CFR 52.21(j)(3). See Section 2.1.1 of this TSD for more discussion on the BACT path.

The baseline NO_x emission (August 1984 through July 1986) of 4,458 ton/yr was found to have modeled visibility impacts to federal Class I areas. See Table 7, which is based on the submittals of modeling results for PER 004.

Table 7. Regional Haze Modeling Results: Days over 10% change threshold*

Class I Area	Method	At 13,300 ton NO _x /yr	Pre-modification**
Boundary Waters Canoe Area	IWAQM/FLAG	148	101
	NPS Alternative 1	130	87
	NPS Alternative 2	115	69
Voyageurs National Park	IWAQM/FLAG	65	11
	NPS Alternative 1	50	6
	NPS Alternative 2	48	8
Isle Royale National Park	IWAQM/FLAG	23	39
	NPS Alternative 1	18	31
	NPS Alternative 2	12	26
Source of Data: Submittal Date & Table		1/24/2005 Table C	3/30/2004 Table C

* These are considered adverse impacts.

** This is 4,458 ton NO_x /yr, the baseline NO_x emission averaged from August 1984 through July 1986.

To address the requirements of 40 CFR 52.21 (p) that adverse visibility impacts to Class I areas be mitigated, the permit requires an aggressive schedule of activities intended to achieve significant reductions in NO_x emissions.

At Permit Issuance, the permit sets a short-term NO_x emission limit for the combined emissions from all five lines (waste gas stacks) of 5,000 lb/hr averaged over 24 hours (see Attachment 1 for derivation), and a long-term NO_x emission limit for the combined emissions of 13,300 ton/yr using 365-day Rolling Sum (based on PER 004 draft permit). By December 31, 2009, the Permittee is required to install Low NO_x burners at the traveling grate preheat zone of the Agglomerators, Lines 3 through 7. With the anticipated major reduction in emissions from the Low NO_x burners, the long-term NO_x emission limit becomes 7,300 ton/yr using 365-day Rolling Sum on February 1, 2010.

The Permittee is required to complete, within 545 days from Permit Issuance, a Computational Fluid Dynamics (CFD) modeling study to investigate potential reductions in indurating NO_x formation through process optimization. The permit does not specify a NO_x limit that could be

achieved through reducing NO_x formation because there is no way to anticipate what the CFD study will show. Both the Permittee and the MPCA believe, however, that the study may yield important information to prevent NO_x formation and reduce NO_x emissions even further from the February 1, 2010 emission limit.

The permit also requires a commitment to study, pilot and demonstrate several add-on control technologies that are either in use in other industries or are showing early promise. The goal is to complete this work by February, 2014, such that further NO_x emissions reductions will be realized by that time. The technologies that are piloted and demonstrated will be evaluated using six criteria:

- Technical feasibility or impact on pellet quality
- Level of NO_x reduction
- Cross media impacts
- Multi-pollutant co-control benefits
- Energy efficiency or consumption impact; and
- Economic feasibility

It should be noted that three of the criteria concern the other environmental effects of the control technologies. The MPCA believes it is very important to consider the full scope of the environmental impacts of any given technology before approving a technology for installation on all production lines.

The goal of Low NO_x burner installation, process optimization and add-on control technologies, however, is to reduce the long-term NO_x emission limit by at least 70% from the initial limit at Permit Issuance (13,300 ton/yr). Because it is not known at this time whether any of the currently-identified add-on technologies will be acceptable under the six criteria, the permit does not establish a final NO_x emission limit. In this permit, a goal is a target for the Permittee, but is not intended to be an enforceable permit condition.

Figure 1 charts out the NO_x reduction process (CFD timeline is omitted in the chart to simplify presentation). Each of the elements of the permit's NO_x reduction strategy is described more fully below.

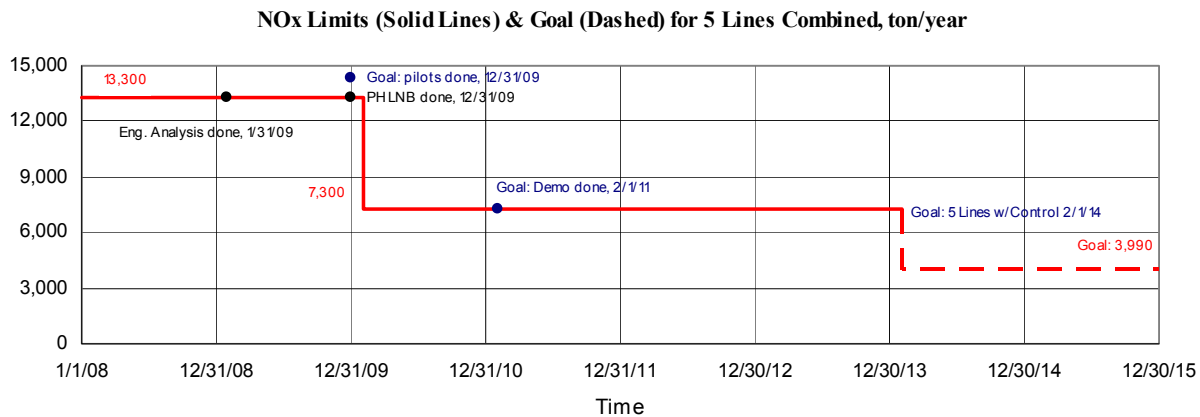


Figure 1. Selected Milestones for Permit Action 005

Low NO_x Burners (LNB): Until recently, space restriction at the grate preheat zone prevented using LNB technology. In a submittal for Best Available Retrofit Technology, or BART, Minntac identified LNB for the auxiliary burners (at the traveling grate preheat zone) as an option for BART NO_x reductions. An LNB application at the grate preheat zone of one Step III Agglomerator line is reported to achieve both fuel usage reduction and an approximately 20% NO_x emission reduction at the waste gas stack. Therefore, based on the BART submittal, LNB application at the grate preheat zone is now required in this permit, per 40 CFR 52.21 (p), for all five agglomerator lines by December 31, 2009. The MPCA expects approximately 20% reduction in NO_x emissions from the low NO_x burners based on performance at the one Agglomerator where they have already been installed.

CFD Study: To facilitate understanding of indurating NO_x formation for guiding long-term NO_x mitigation efforts, the Permittee is also required to commission and complete a CFD modeling study, which is to be completed within 545 days from Permit Issuance, which would be mid-2010. If the CFD study and implementation of resulting strategies yields good reductions in NO_x emissions and the initial round of piloting and demonstrating add-on control technologies does not produce a technology that is approvable for installation on all lines, the Permittee may submit a request to end the pursuit of add-on NO_x control technologies.

Piloting, demonstrating, installing and operating other technologies: It is the MPCA's expectation that NO_x emission prevention and/or control technologies, innovative or otherwise, will be transferred successfully to the taconite (iron ore) concentrate pellet indurating process in the coming years. The requirements in 40 CFR 52.21 (p) affords more time to encourage the Permittee to pilot, demonstrate/prove, install and operate NO_x emission control technologies that have been proven for other types of industrial emission units to go beyond eliminating the adverse impacts due to the indurating process modification. The reason for providing goals of completion dates for some of these requirements in the permit is to address uncertainty in lead time for equipment procurement, contractor work planning, and other factors

Among the technologies that the Permittee may analyze to pilot, demonstrate/prove and eventually install and operate are:

LoTOx: In its initial PSD permit application submitted in February 2006, Minnesota Steel Industries, LLC, selected a low temperature oxidation control technology, known as LoTOx, as BACT for NO_x emissions for a proposed straight grate indurating furnace. Ultimately, Minnesota Steel identified “no controls” as BACT for the indurating furnace because LoTOx had not been proven in its application to an indurating furnace. Air Emission Permit No. 06100067-001, which was issued to Minnesota Steel Industries, LLC on September 7, 2001, however, requires the company to conduct a test of the LoTOx technology to reduce NO_x emissions from the indurating furnace.

The Minnesota Steel process indicated to the MPCA that LoTOx could be technically feasible for NO_x emission control for indurating furnaces. In a letter dated August 18, 2006, the MPCA requested that Minntac update the BACT analysis to include LoTOx as a technology option. A cost analysis was also attached to the MPCA letter. See Attachment 4 to this TSD for detail. In response to this request, Minntac submitted an updated BACT analysis on June 30, 2006, that included an examination of feasibility of LoTOx for NO_x emissions control. While questioning LoTOx’s technical feasibility, Minntac concluded LoTOx was not economically feasible and it was not selected as BACT for NO_x emissions. Based on the BACT analyses for both Minnesota Steel and Minntac, LoTOx cannot be determined as BACT for Minntac’s backward-looking PSD permit in the current permit action. U.S. Steel presented this position in a BACT eligibility analysis attached to a letter from Minntac dated October 12, 2006. See Attachment 5.

SCR: Luossavaara-Kiirunavaara AB (LKAB) of Sweden, a state-owned iron ore mining and processing company, has installed a new grate-kiln indurating furnace (KK4), which is scheduled to begin commercial pellet production on June 1, 2008. Having been pilot tested successfully at an older furnace (KK2, a coal-fired unit that produces acid pellets of magnetite concentrate), Selective Catalytic Reduction (SCR) has been installed with KK4 to control stack NO_x emissions without in-stream reheating (*i.e.*, a “dirty side SCR”). Results of the full scale SCR testing at KK4 are due 12/31/2009. For KK4, the estimated control cost ranges from US\$3,032/ton of NO_x removed to US\$3,246/ton of NO_x removed. The SCR installation option with in-stream natural gas reheating and supplement heat recuperation, not chosen by LKAB, would have cost from US\$14,319/ton of NO_x removed to US\$15,376/ton of NO_x removed.

The difference in control cost effectiveness between these two options appear to have confirmed the MPCA’s previous (PER 004) determination that waste gas reheating for SCR consumes too much energy (based on thermodynamic calculations and ideal gas assumption for the stack gas stream as well as 700 ° F for SCR reaction temperature and 80% NO_x removal efficiency). SCR without waste gas reheating was not selected as BACT for PER 004 (the “dirty side SCR” was determined by the MPCA to be not technically feasible).

Recent advancement in low temperature catalysts (lower than 600 ° F) has reduced stack gas reheating cost so much that a clean side SCR should be investigated. Richard Abrams, of Babcock Power Environmental, Inc., made a presentation at the International Biomass ’08 Conference and Trade Show at Minneapolis Convention Center, 4/16/2008, on Regenerated Selective Catalytic Reduction (RSCR) applied to WFB, WTE, and industrial boilers, based on U.S. Patent # 7,294,321 issued 11/14/2007. The RSCR is installed on the clean side of a dry electrostatic precipitator (ESP) with in-stream gas reheating, Cormetech catalyst and ceramic

media modules. Mobotec is another new control technology worth investigated. It can stand alone or be combined with SCR or Selective Non-Catalytic Reduction (SNCR).

LKAB will soon begin full scale testing of the dirty side SCR at KK4, which was inconceivable not too long ago.

SNCR: SNCR, which was determined not technically feasible by the MPCA in another BACT determination, is now included in the list of control technology options for Minntac to have engineering analyses conducted for purpose of proposing options for full scale demonstration/proving on one Agglomerator line.

By structuring the NO_x reduction requirements in three tiers (LNB at the grate, CFD modeling, and NO_x emission control technology application), the Permittee should have a time frame long enough to select, pilot test, full scale demonstrate/prove a few control technologies, and to install and operate those that are technically feasible, pursuant to 40 CFR 52.21(p), to meet the goal of more than merely eliminating the adverse impacts of the indurating process modification by February 1, 2014 (note that the baseline NO_x emission of 4,458 ton/yr was found to have modeled visibility impacts to federal Class I).

The permit goal can be met within the anticipated time frame if the combined application of LNB at the grate, NO_x formation prevention strategies guided by CFD modeling, and add-on control technologies achieve at least 70% reduction in NO_x emissions from the initial limit of 13,300 ton/yr. The MPCA will make the final decision on the evaluation of the technology demonstration, after consulting with federal land managers and communicating with the Permittee. The MPCA will establish the NO_x emission control technology/technologies, after their successful application at the operating Agglomerator lines, as Best Available Control Technology (BACT), based on emission and cost data required to be collected with this permit.

The requirements discussed above can be as effective as a BACT limit.

2.1.3. Other Analyses

Air Quality Analysis and Additional Impacts Analysis are grouped here for this TSD. The Permittee submitted for PER 004 the following analyses, as summarized in Table 7 in the previous section in this TSD and in Table 8 of this section.

- “Ambient Air Impact Analysis on the Federal Class I Areas,” 12/15/2000
- “USS Minntac Response to MPCA Letter of March 24, 2004 – Regional Haze Analysis Modeling Results,” March 30, 2004
- “MPCA Air Emission Permit No. 13700005-004 of December 15, 2004 – Regional Haze and Nitrogen Deposition Analysis Modeling Results,” January 24, 2005
- “MPCA Air Emission Permit No. 13700005-004 of December 15, 2004 – NO_x Increment Analysis in Class I Areas,” June 7, 2005

Table 8. NO_x Increment Analysis Modeling Results (Annual Concentrations, µg/m³)

Minntac-Alone	Year	BWCA*	VNP	IRNP	RLWA
13,300 TPY - PreMod	1990	0.21	0.07	0.02	0.03
	1992	0.19	0.07	0.01	0.03
	1996	0.10	0.07	0.01	0.04
Minntac + Background	Year	BWCA*	VNP	IRNP	RLWA
13,300 TPY - PreMod	1990	0.26	0.20	0.02	0.04
	1992	0.23	0.17	0.01	0.03
	1996	0.13	0.19	0.01	0.04

* Class I areas are Boundary Waters Canoe Area, Voyageurs National Park (NP), Isle Royale NP, and Rainbow Lake Wilderness Area. The PSD allowable impact is 2.5 µg/m³.

Minntac also analyzed consumption of Class II (near field) PSD increments for NO_x. The maximum predicted concentration was 23.2 µg/m³, less than the Class II increment of 30 µg/m³.

2.2. Emission Standards

Emission standards originate from three sources: the federal New Source Performance Standards (NSPS), the National Emission Standards for Hazardous Air Pollutants (NESHAP) and the State Standards for Stationary Sources in Minnesota.

Federal New Source Performance Standards (NSPS)

The NSPS are established for specific industrial source categories and are updated periodically. 40 CFR pt. 60, subpart Y, “Standards of Performance for Coal Preparation Plants,” and 40 CFR pt. 60, subpart LL “Standards of Performance for Metallic Mineral Processing Plants,” are relevant to the Minntac facility, but not to the indurating process modification.

National Emission Standards for Hazardous Air Pollutants (NESHAPs)

Section 112 of the Clean Air Act (CAA) of 1970 authorized the EPA to establish health-based NESHAPs for an initial list of eight Hazardous Air Pollutants (HAPs). There are currently 22 NESHAPs codified at 40 CFR pt. 61 for these eight HAPs (asbestos, benzene, beryllium, coke oven emissions, inorganic arsenic, mercury, radionuclides and vinyl chloride). None of these NESHAPs is relevant to the indurating process modification.

Section 112 of the Clean Air Act Amendments (CAAA) of 1990 authorized the EPA to establish NESHAPs for an additional 188 HAPs. The NESHAPs in 40 CFR pt. 63 were established to regulate specific categories of stationary sources that are major sources of one or more of these HAPs. A major source is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit (considering controls) 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAPs. These NESHAPs impose Maximum Achievable Control Technology (MACT) on major sources of HAPs and are often referred to as MACT standards. There are three subparts that are relevant to the Minntac facility but not the indurating process modification. As such, conditions that require the Permittee to comply with these rules would be incorporated more conveniently at reissuance of the Title V permit (which expires on February 26, 2008), although the Permittee is required to comply with them as of their effective date.

Subpart RRRRR (“National Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing”) was promulgated in the Federal Register on 10/30/03. The effective date of this rule was October 30, 2006, for the existing Minntac facility.

Subpart ZZZZ (“National Emission Standards for Hazardous Air Pollutants: Reciprocating internal combustion engines”) was promulgated in the Federal Register on June 15, 2004, Minntac has notified (on 10/15/2004) the EPA and MPCA that all RICE units, designated as SV 008, 009, 012, 029, 098, 183 through 186, each of which is less than 500 BHP, are for emergency power generation; as such, no more requirement is Subpart ZZZZ is applicable to these units.

State Standards for Stationary Sources

Minnesota’s air quality rules specify standards for various industrial source categories. These standards are, in essence, the state’s versions of the federal NSPS and NESHAP and, in many cases, simply incorporate the federal rules by reference. However, the state rules also specify

standards for control equipment efficiencies and visible emissions (for sources not covered by another standard of performance).

The Minntac facility is subject to the following state standards for stationary sources:

- Minn. R. 7011.0150: Preventing avoidable amounts of fugitive particulate matter emissions from becoming airborne.
- Minn. R. 7011.0510: Standards of performance for existing indirect heating equipment.
- Minn. R. 7011.0515: Standards of performance for new indirect heating equipment. (It means that construction, modification, or reconstruction of the indirect heating equipment commenced after January 31, 1977.)
- Minn. R. 7011.0610: Standards of performance for fossil-fuel-burning direct heating equipment.
- Minn. R. 7011.0710: Standards of performance for pre-1969 industrial process equipment.
- Minn. R. 7011.0715: Standards of performance for post-1969 industrial process equipment.
- Minn. R. 7011.1150: Standards of coal preparation plants.
- Minn. R. 7011.2300: Standards of performance for stationary internal combustion engines.
- Minn. R. 7011.2700: Standards of performance for new metallic mineral processing plants (which incorporates the federal NSPS by reference).

3. Overview

Table 9 gives an overview of units affected by the current permit action, *i.e.*, at total facility, group, and monitor levels.

Table 9. Regulatory Overview of Units Affected by Permit Action 005

Facility, GP, or MR	Applicable Regulations	Comments:
<u>Facility</u> in CD-01 Sec. F, Item 33; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Commission</u> , within 180 days of Permit Issuance, a Computational Fluid Dynamics (CFD) modeling study to investigate potential reductions in indurating NO _x formation through process optimization or modification. Additional CFD studies may also be completed as required by selected NO _x control technologies.
<u>Facility</u> in CD-01 Sec. F, Items 34 - 35; Table A; Table B, one-time	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Notification</u> of Commissioning the CFD Study Including a Work Product Deliverable Schedule: due 15 days after hiring a contractor to complete CFD modeling, as required for the investigation of potential reductions in indurating NO _x formation and/or as required by selected NO _x control or generation reduction technologies. <u>Submit</u> : due 365 days after beginning the CFD study, a final report on CFD modeling of indurating NO _x formation. CFD modeling will be conducted as required for the investigation of potential reductions in indurating NO _x formation and/or as required by selected NO _x control or generation reduction technologies. Include model validation, outlook for NO _x reduction as predicted with CFD run results, and successful implementations and/or lessons learned in applying CFD findings in the years past, if appropriate.
<u>Facility</u> in CD-01 Sec. F, Items 36-37; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Install</u> , due before 12/31/2009, Low NO _x Burners (LNB) at the grate preheat zone of Lines 3 through 7. { This is a reminder; this requirement is repeated in GP 009, 010, and 011. } <u>Notification</u> of the Actual Date of Initial Startup: due 15 days after Initial Startup of the last installed grate preheat Low NO _x Burner(s) of all five lines (Lines 3, 4, 5, 6, and 7). The Permittee shall list individual dates of initial startup of Low NO _x Burners in the notice.
<u>Facility</u> in CD-01 Sec. F, Item 38; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Complete</u> engineering analyses, no later than 1/31/2009, on LoTO _x , SCR (dirty-side; clean-side, including Regenerative SCR), SNCR, Mobotec, and others as proposed by the Permittee. Technical feasibility is the only criterion to consider due to adverse impact on Class I area visibility.

Table 9. Regulatory Overview of Units Affected by Permit Action 005 (Continued)

Facility, GP, or MR	Applicable Regulations	Comments:
<u>Facility</u> in CD-01 Sec. F, Item 38; Table B, one-time	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Submit</u> : due before 02/28/2009 selected NO _x control technologies, for MPCA's approval, to be pilot tested with a proposed test schedule. In the Engineering Analysis Report, the Permittee shall also identify the corporate relationship, if any, between U.S. Steel and the testing firm that would pilot test a NO _x control technology.
<u>Facility</u> in CD-01 Sec. F, Item 39; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Commence</u> pilot testing of selected NO _x control technologies, upon receipt of written MPCA approval of the selection and the test schedule and receipt of permit(s) as needed. Collect data to be used for evaluation of control technology success. Complete pilot tests by 12/31/2009, or as outlined in MPCA approved schedule, whichever is later. MPCA will evaluate the control technology using the following criteria at a minimum: 1. technical feasibility or impact to pellet quality; 2. significant NO _x reduction; 3. cross media impacts; 4. multi-pollutant co-control benefits; 5. energy efficiency or consumption impact; and 6. economic feasibility.
<u>Facility</u> in CD-01 Sec. F, Item 40; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Submit</u> , no more than 60 days after pilot test completion, Pilot Test Results of NO _x control technologies for MPCA's approval. The Pilot Test Results submittal shall include, at a minimum, a technical description of each control technology tested, and a summary of major physical and chemical data obtained that are important for deciding whether or not the technology should be demonstrated. With the Pilot Test Results, the Permittee shall propose one control technology for full scale demonstration on one Agglomerator line and shall rank the other control technologies that have been pilot tested for potential demonstration.
<u>Facility</u> in CD-01 Sec. F, Item 41; Table B, one-time	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Submittal of Permit Application</u> : due 60 days after receipt of written MPCA approval of NO _x emission control pilot testing results, for a major permit amendment to install a control technology at one Agglomerator line for a full scale demonstration. <u>Submit</u> a schedule of equipment installation, anticipated startup, and final reporting of the demonstration within 60 days of receipt of the Permit from the MPCA.

Table 9. Regulatory Overview of Units Affected by Permit Action 005 (Continued)

Facility, GP, or MR	Applicable Regulations	Comments:
Facility in CD-01 Sec. F, Item 43; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<u>Commence</u> full scale demonstration of the selected NO _x control technology at one Agglomerator line, upon receipt of MPCA permit(s). This includes, but is not limited to the following tasks: 1) compiling emission monitoring and stack testing data that were generated before installing the control technology; 2) installing and operating the control technology; 3) monitoring emissions and conducting stack testing with the control technology operating; 4) collect capital and operating cost data. The goal is to have the demonstration completed by 2/1/2011. A goal is a target for the Permittee but is not intended to be an enforceable permit condition.
Facility in CD-01 Sec. F, Items 44-45; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<p><u>Submit</u>, within 60 days following completion of the full scale demonstration, a Full Scale Demonstration Report for MPCA approval. At a minimum, the report shall include a summary of: 1) mass rate (lb/hr) and concentration (ppmv, dry) of NO_x, SO₂, CO, and mercury entering and exiting each demonstrated control technology; 2) control efficiencies and emission factors in lb/dry, long ton of pellets made and in lb/million Btu total heat input for NO_x, SO₂, CO, and mercury, based on statistical analyses of hourly continuous emission and process monitoring results and, if necessary, additional stack testing results; and 3) cross-media quantification for scrubbing and/or plant process water.</p> <p>MPCA will evaluate the full scale technology demonstration using the criteria specified to evaluate the pilot testing at a minimum. The goal is to have NO_x control technology installation completed for all operating lines by 2/1/2014, or as outlined in MPCA approved schedule, whichever is later. A goal is a target for the Permittee but is not intended to be an enforceable permit condition.</p>
Facility in CD-01 Sec. F, Item 46; Table B, one-time	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	<p><u>Submittal of Permit Application</u>: due 60 days after receipt of written MPCA approval of the final report on control technology demonstration, for a major permit amendment to install the demonstrated control technology on the remaining four Agglomerator lines.</p> <p><u>Submit</u> a schedule of equipment installation and anticipated startup of individual lines within 60 days of receipt of the Permit from the MPCA.</p>

Table 9. Regulatory Overview of Units Affected by Permit Action 005 (Continued)

Facility, GP, or MR	Applicable Regulations	Comments:
<p><u>Facility</u> in CD-01 Sec. F, Items 48- 51; Table A</p>	<p>Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000</p>	<p>If the MPCA determines that the demonstrated control technology should not be installed on the remaining lines in operation, the Permittee shall commence demonstration of the next-ranked control technology option that was submitted with the Pilot Test Results and shall submit a Full Scale Demonstration report as required above. The Permittee shall continue this process until either the MPCA approves a control technology for installation on the remaining lines in operation or all of the ranked technology options have been exhausted. If all of the ranked technology options are exhausted and the MPCA has not approved a technology for installation on the remaining lines in operation, the Permittee shall proposed a schedule for completion of a Supplemental Engineering Analysis that at a minimum identifies any previously unidentified NO_x control technologies, NO_x reduction strategies or then current industry practices. The specific provisions of the Supplemental Engineering Analysis shall be incorporated into the permit through the submission of a major permit amendment.</p> <p>The Supplemental Engineering Analysis shall be submitted to the MPCA no later than 60 days after written notification from the MPCA that none of the pilot tested technologies are approvable for installation on all lines in operation. The Supplemental Engineering Analysis will identify new potentially feasible control technologies, based on previously identified criteria, and propose a schedule, for MPCA approval, of supplemental pilot tests, pilot test reports, installation of technology for a full scale demonstration, demonstration project reports, and full installation of control technology at remaining operating Agglomerator lines.</p> <p>If the Supplemental Engineering Analysis concludes that no technologies are currently feasible, based on previously identified criteria, and MPCA approves, another Supplemental Engineering Analysis will be submitted by the Permittee within 1095 days of last Supplement Engineering Analysis submittal, with all of the procedures that the MPCA has previously approved, with the exception that the Permittee need not obtain a major permit amendment to implement additional Supplemental Engineering Analyses. The Permittee shall continue to submit Supplemental Engineering Analyses every 1095 days until NO_x control technologies have been installed on all operating Agglomerator lines.</p>

Table 9. Regulatory Overview of Units Affected by Permit Action 005 (Continued)

Facility, GP, or MR	Applicable Regulations	Comments:
<u>Facility</u> in CD-01 Sec. F, Item 52; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	If the MPCA approves a demonstrated control technology for installation at the remaining lines in operation, the Permittee shall commence installation upon receipt of MPCA permits(s). If a non-operating line recommences operation, the Permittee shall install the approved NO _x control technology before the line resumes operation. Installation includes, but is not limited to: 1) installing and operating the control technology; 2) monitoring emissions and conducting stack testing with the control technology operating and setting emission limits; and 3) collect capital and operating cost data.
<u>Facility</u> in CD-01 Sec. F, Item 53; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	Within 60 days after completion of full scale installation, submit a Final NO _x Reduction Report for MPCA approval to document the NO _x reduction process and major findings. At a minimum, the Final Report shall include a summary of: 1) demonstrated control efficiency of the control technology installed at each line and the emission factors (lb/LT pellets; lb/million Btu of total heat input) for each pollutant determined during the full scale demonstration; 2) associated cross-media impacts assessed and mitigation measures; 3) annualized cost of NO _x control for the control technology installed (of capital cost for equipment and operation cost) per ton of NO _x removed; 4) Low NO _x burners, CFD work, the benefit of CEMS application, and other measures taken that contribute to reduction in induration NO _x formation.
<u>GP 009</u> (Line 3) in CD-01, Items 2-4; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	NO _x limits, for all 5 waste gas stacks combined, of 5,000 lb/hr using 24-hr block average and 13,300 ton/yr using 365-day rolling sum at Permit Issuance; 7,300 ton/yr (365-day R.S.) by 2/1/2010.
<u>GP 009</u> (Line 3) in CD-01, Items 5-7, 13, 15, 24, and 25; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	BACT emission limits of fluorides, CO, and VOC. Requirement to install Low NO _x burners at the grate preheat zone. Fuel restrictions. Initial performance test and testing frequency plan.

Table 9. Regulatory Overview of Units Affected by Permit Action 005 (Continued)

Facility, GP, or MR	Applicable Regulations	Comments:
<u>GP 010</u> (L's 4 & 5) in CD-01, Items 2-4; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	NO _x limits, for all 5 waste gas stacks combined, of 5,000 lb/hr using 24-hr block average and 13,300 ton/yr using 365-day rolling sum at Permit Issuance; 7,300 ton/yr (365-day R.S.) by 2/1/2010.
<u>GP 010</u> (L's 4 & 5) in CD-01, Items 5-7, 13, 15, 24, and 25; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	BACT emission limits of fluorides, CO, and VOC. Requirement to install Low NO _x burners at the grate preheat zone. Fuel restrictions. Initial performance test and testing frequency plan.
<u>GP 011</u> (L's 6 & 7) in CD-01, Items 2-4; Table A	Title I conditions: to mitigate adverse impacts on Class I areas visibility from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000	NO _x limits, for all 5 waste gas stacks combined, of 5,000 lb/hr using 24-hr block average and 13,300 ton/yr using 365-day rolling sum at Permit Issuance; 7,300 ton/yr (365-day R.S.) by 2/1/2010.
<u>GP 011</u> (L's 6 & 7) in CD-01, Items 5-9, 15, 17-19, 28, & 29; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2	BACT emission limits of fluorides, CO, and VOC. Requirement to install Low NO _x burners at the grate preheat zone. Fuel restrictions. Initial performance test and testing frequency plan.
<u>MR 001</u> (for GP 009) in CD-01; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7017	Requirements specific to Line 3 CEMS for tracking in DELTA: Initial startup of the monitor; certification test; cylinder gas audit (CGA); relative accuracy test audit (RATA); CGA results summary; RATA results summary; EER's. If any of these has appeared at the <u>Facility</u> level, it serves as a reminder either here or there.

Table 9. Regulatory Overview of Units Affected by Permit Action 005 (Continued)

Facility, GP, or MR	Applicable Regulations	Comments:
<u>MR 002</u> (for GP 010) in CD-01; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7017	Requirements specific to Line 4 CEMS for tracking in DELTA: Initial startup of the monitor; certification test; cylinder gas audit (CGA); relative accuracy test audit (RATA); CGA results summary; RATA results summary; EER's. If any of these has appeared at the <u>Facility</u> level, it serves as a reminder either here or there.
<u>MR 003</u> (for GP 010) in CD-01; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7017	Requirements specific to Line 5 CEMS for tracking in DELTA: Initial startup of the monitor; certification test; cylinder gas audit (CGA); relative accuracy test audit (RATA); CGA results summary; RATA results summary; EER's. If any of these has appeared at the <u>Facility</u> level, it serves as a reminder either here or there.
<u>MR 004</u> (for GP 011) in CD-01; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7017	Requirements specific to Line 6 CEMS for tracking in DELTA: Initial startup of the monitor; certification test; cylinder gas audit (CGA); relative accuracy test audit (RATA); CGA results summary; RATA results summary; EER's. If any of these has appeared at the Facility level, it serves as a reminder either here or there.
<u>MR 005</u> (for GP 011) in CD-01; Table A	Title I Condition: BACT emission limits, 40 CFR 52.21(j)(3); Minn. R. 7007.3000; Minn. R. 7017	Requirements specific to Line 7 CEMS for tracking in DELTA: Initial startup of the monitor; certification test; cylinder gas audit (CGA); relative accuracy test audit (RATA); CGA results summary; RATA results summary; EER's. If any of these has appeared at the Facility level, it serves as a reminder either here or there.

The requirements in Table 10 were removed from this permit before the permit was placed on public notice. These requirements, except the last one, are typically used in an air quality permit for a permittee to begin a continuous monitoring program. Minntac has already completed the activities associated with these requirements. The last requirement in Table 10, which resulted from a previous permit action, was completed during a performance test on May 16, 2001. Thus, at Minntac's request, the MPCA removed these requirements from the permit.

Table 10. Requirements Removed from PER 005 for Actions Already Completed

Level	Why to do it	What to do
<u>Facility</u> in CD-01 Sec. F; Table A	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1040, subp. 1.	Installation Notification: due 60 days before completing the installation of all aspects of CEMS for NOx and SO2 mass emission measurement. The notification must include a list of equipment and configuration including any monitor bypass routes, sample treatments/ conditioning if applicable, data reduction, data gap filling procedure (as per 40 CFR 75 or a Permittee-proposed alternative, subject to MPCA-approval), routine maintenance, spare parts inventory, and maintenance/ repair services. The Notification may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2.level, it serves as a reminder either here or there.
<u>Facility</u> in CD-01 Sec. F; Table A	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1040, subp. 1.	Initial Startup of the Monitor: due 60 days after Permit Issuance. The Monitor means CEMS, which is the total equipment for NOx and SO2 mass emission measurement.
<u>Facility</u> in CD-01 Sec. F; Table A	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1060, subp. 1-2.	CEMS Certification Test Plan: due 30 days before CEMS Certification Test. The Test Plan may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2.
<u>Facility</u> in CD-01 Sec. F; Table A	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1060, subp. 3.	CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test.
<u>Facility</u> in CD-01 Sec. F; Table A	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1080, subp. 1, 2, and 4.	CEMS Certification Test Report: due 45 days after CEMS Certification Test. The Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2.
<u>Facility</u> in CD-01 Sec. F; Table A	Title I Conditions: to monitor NOx mitigation for Class I visibility impacts from pellet induration; 40 CFR 52.21 (p); Minn. R. 7007.3000; Minn. R. 7017.1080, subp. 3.	CEMS Certification Test Report - Microfiche Copy: due 105 days after CEMS Certification Test. A CD-ROM copy of the test report shall be accepted as an alternative to the microfiche copy, provided that the test report in the CD-ROM is in PDF or TIF format to address compatibility issues.
<u>GP 011</u> in CD-01; Table A	Title I Condition: a 1997 action that avoided major classification under 40 CFR 52.21	CO and VOC Emission Factors: a performance test for CO and VOC shall be conducted, at either one or both kilns of this Group for at least once, to generate emission factors in lbs/million Btu for purpose of emission calculation for the combustion of wood waste (wood, wood bark, and sawdust).

3. Technical Information

3.1 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 11 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 11. Periodic Monitoring

GP, SV, or EU	Requirement (basis)	Additional Monitoring	Discussion
<u>GP 009</u> (Line 3) in CD-01, Items 22 - 23; Table A	Fluorides \leq 1.04 lb/hr at SV 103	Wet scrubber parameters: Gas stream pressure drop and scrubbing water flow rate	The fluoride BACT limit is based on the results of stack tests during which the particulate control wet scrubbers were operated normally. Thus, if the wet scrubber is operated normally, e.g., if parametric monitoring result shows compliance with taconite MACT (40 CFR 63, subp. RRRRR), there should also be compliance with the fluoride limit.
<u>GP 009</u> (Line 3) in CD-01, Item 24; Table A	CO \leq 68.8 lb/hr & VOC \leq 51.6 lb/hr at SV 103	Waste Gas to Heat Input Ratio: Waste gas stack flow (scfh) as measured for CEMS divided by total heat input (million Btu/hr)	This may serve as an indicator for combustion process control for the indurating furnace. See Attachment 7 for preliminary scf/Btu data. Air-fuel ratio, used elsewhere in mechanical power generation, is borrowed here. Convenient to obtain and use, it is also less burdensome than the excess air equation widely used for boilers.*

Table 11. Periodic Monitoring (Continued)

GP, SV, or EU	Requirement (basis)	Additional Monitoring	Discussion
<u>GP 010</u> (L's 4 & 5) in CD-01, Items 22 - 23; also in Table A	Fluorides ≤ 1.62 lb/hr at SV 118; Fluorides ≤ 1.62 lb/hr at SV 127	Wet scrubber parameters: Gas stream pressure drop and scrubbing water flow rate	The fluoride BACT limit is based on the results of stack tests during which the particulate control wet scrubbers were operated normally. Thus, if the wet scrubber is operated normally, e.g., if parametric monitoring result shows compliance with taconite MACT (40 CFR 63, subp. RRRRR), there should also be compliance with the fluoride limit.
<u>GP 010</u> (L's 4 & 5) in CD-01, Item 24; Table A	CO ≤ 98.6 lb/hr & VOC ≤ 74.0 lb/hr at SV 118; CO ≤ 98.6 lb/hr & VOC ≤ 74.0 lb/hr at SV 127	Waste Gas to Heat Input Ratio: Waste gas stack flow (scfh) as measured for CEMS divided by total heat input (million Btu/hr)	This may serve as an indicator for combustion process control for the indurating furnace. See Attachment 7 for preliminary scf/Btu data. Air-fuel ratio, used elsewhere in mechanical power generation, is borrowed here. Convenient to obtain and use, it is also less burdensome than the excess air equation widely used for boilers.*
<u>GP 011</u> (L's 6 & 7) in CD-01, Items 26 - 27; also in Table A	Fluorides ≤ 1.62 lb/hr at SV 144; Fluorides ≤ 1.62 lb/hr at SV 151	Wet scrubber parameters: Gas stream pressure drop and scrubbing water flow rate	The fluoride BACT limit is based on the results of stack tests during which the particulate control wet scrubbers were operated normally. Thus, if the wet scrubber is operated normally, e.g., if parametric monitoring result shows compliance with taconite MACT (40 CFR 63, subp. RRRRR), there should also be compliance with the fluoride limit.
<u>GP 011</u> (L's 6 & 7) in CD-01, Item 28; Table A	CO ≤ 74.0 lb/hr & VOC ≤ 54.3 lb/hr at SV 144; CO ≤ 74.0 lb/hr & VOC ≤ 54.3 lb/hr at SV 151	Waste Gas to Heat Input Ratio: Waste gas stack flow (scfh) as measured for CEMS divided by total heat input (million Btu/hr)	This may serve as an indicator for combustion process control for the indurating furnace. See Attachment 7 for preliminary scf/Btu data. Air-fuel ratio, used elsewhere in mechanical power generation, is borrowed here. Convenient to obtain and use, it is also less burdensome than the excess air equation widely used for boilers.*

$$* \text{ Excess Air} = \frac{\%O_2}{0.264 \times (100 - \%O_2 - \%CO_2) - \%O_2} \times 100\%$$

3.2 Comments Received

The notice of the comment period for the permit was published in the Mesabi Daily News, at Virginia, MN, on September 5, 2008. The Public Notice Period was run from September 6, 2008 to October 22, 2008, to coincide with the EPA's 45-day review period (also known as "EPA's operating permit review period; EPA's review on construction provisions is not relevant to this permit, due to the backward-looking nature of the indurating process modification). In addition, a public meeting was held to collect comments on October 6, 2008, at Mesabi Range Community and Technical College in Virginia, MN.

Public Notice Period: September 5, 2008 – October 22, 2008
EPA 45-day Review Period: September 5, 2008 – October 22, 2008

Comments were received from the public including the FLMs during the public notice period. The comments received did include adverse comments on some of applicable requirements of the permit. The MPCA made changes to the permit in response to public comments and in consultation FLMs. (The commenters are listed in Attachment 8-A; the comments are summarized and the MPCA's responses are detailed in Attachment 8-B.)

No comments were received from EPA during their review period.

The permit was also presented to the MPCA's Citizens' Board on December 16, 2008. The Board approved the permit. The permit was signed on December 22, 2008. The MPCA sent out a notice of this permit decision to commenters on December 22, 2008, in a letter that also notified them of their opportunity to appeal the permit to EPA's Environmental Appeals Board (EAB).

EAB Appeal Period: December 23, 2008 – January 26, 2009

The EAB was contacted by telephone on the morning of January 27, 2009 (202-233-0122). No appeal was filed with the EAB for this permit. The permit was mailed to the Permittee shortly thereafter.

4. Conclusion

Based on the information from the Permittee, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700005-005 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:

Hongming Jiang (permitting)
Robert Beresford (enforcement)
Andrew Place (performance testing)
Christopher Nelson (modeling review)
Richard Cordes (peer reviewer)

AQ File No. 26A; DQ# 446

- Attachments:
1. NO_x limit at issuance 24-hr av (derivation of short-term limit; in DELTA)
 2. Emission Increases Summary (baseline & future emissions; in DELTA)
 3. BACT Analysis submitted 5/16/2006, for CO, VOC and fluoride emissions (the limits on fluorides, as submitted, are derived incorrectly; not in DELTA)
 4. MPCA Ltr of Data Req 8-18-2006 (asking USS to update BACT analysis for LoTO_x; in DELTA; note the MPCA has since this letter changed its position regarding LoTO_x – for Permit No. 13700005-005, LoTO_x is not BACT)
 5. USS LoTO_x Ltr 10-12-2006 (why LoTO_x cannot be BACT; in DELTA)
 6. Calc of BACT Limit: Fluorides (derivation of fluoride limits; in DELTA)
 7. Preliminary WG/Heat Input Data (scf/Btu at Lines 4 & 5; in DELTA)
 8. A. List of Commenters (in DELTA)
B. Comments Received and Responses (in DELTA)
 9. Changes Made to the Permit (in DELTA) – The Board’s decision required these changes to be made (see, also in DELTA, “Board Documents” Items 1 and 4)