

**AIR EMISSION PERMIT NO. 04900007- 003**

**IS ISSUED TO**

USG Interiors, Inc.

**USG INTERIORS, INC. - RED WING**

27384 Highway 61 Boulevard  
Red Wing, Goodhue County, MN 55066

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

Permit Type	Application Date
Replacement Notification	07/31/2003
Total Facility Oper. Permit - Reissuance	01/21/2004

This permit authorizes the Permittee to operate 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/Major for NSR

**Issue Date:** July 11, 2007

**Expiration:** July 11, 2012  
All Title I Conditions do not expire.

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Richard J. Sandberg, Manager  
Air Quality Permits Section  
Industrial Division

for Brad Moore  
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:**

USG produces mineral wool at its plant in Red Wing. The mineral wool is then sent to other facilities to be made into products such as ceiling tiles. Main emission sources involved in this process are the two cupolas, where the stone and slag are heated and melted with coke, the blow chambers where the melt is spun and blown into wool fibers, and the facility boiler, used for heating the facility when the cupolas are not operating. The boiler is fueled with natural gas. There are also storage tanks for diesel fuel, oxygen, polyethylene glycol, and chain lube. All are below the size that would be subject to any federal or state regulation. Fugitive particulate matter emission sources are produced by raw material handling and storage piles, and unpaved roads. The plant is an existing major source under the federal New Source Review program and Part 70 operating permits program. The plant is a non-major source of Hazardous Air Pollutants (HAPs) due to federally enforceable permit conditions.

PM and PM<sub>10</sub> from the blow chambers are controlled by two drum filters – each blow chamber exhausts to a separate drum filter. CO and COS from the cupolas are controlled by an afterburner. PM and PM<sub>10</sub> from the cupolas are controlled by two fabric filters. At this time, the exhaust gases from the cupolas are combined prior to the fabric filters, then split between the two filters. USG plans to modify this arrangement by having each cupola exhaust to a separate fabric filter, without combining the gases prior to the filters.

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**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**

<b>What to do</b>	<b>Why to do it</b>
<b>SOURCE-SPECIFIC REQUIREMENTS</b>	hdr
Comply with Fugitive Emission Control Plan: The Permittee shall maintain an updated Fugitive Emission Control Plan on site at all times and shall follow the actions and recordkeeping specified in the control 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 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. 7007.0100; Minn. R. 7007.0800, subp. 2; Minn. R. 7011.0150; Minn. R. 7009.0020
Parameters Used in Modeling: The parameters used in the modeling performed to demonstrate compliance with Ambient Air Quality Standards are listed in Appendices B and C of this permit. If the Permittee intends to change any of these parameters, the Permittee must submit the revised parameters to the Commissioner and receive written approval before making any changes. The revised parameter information submittal must include, but is not limited to: the locations, heights and diameters of the stacks; locations and dimensions of nearby buildings; velocity and temperatures of the gases emitted; and the PM10 and SO2 emission rates. The plume dispersion characteristics due to the parameter revisions must equal or exceed the dispersion characteristics modeled for this permit, and the Permittee shall demonstrate this in the proposal.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2
If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must remodel.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2
Parameters Used in Modeling (continued):  For changes that do not involve an increase in PM10 or SO2 emissions and that do not require a permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter.  For changes involving increases in PM10 or SO2 emissions and that require a minor permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter.  For changes involving increases in PM10 or SO2 emissions and that require a permit amendment other than a minor amendment, the proposal must be submitted prior to or with the permit amendment application.  This is a state only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2
<b>DETERMINING IF A PROJECT/MODIFICATION IS SUBJECT TO NEW SOURCE REVIEW</b>	hdr
These requirements apply where there is a reasonable possibility that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test and found to not be part of a major modification, may result in a significant emissions increase. If the ATPA test is not used for a particular project, or if there is not a reasonable possibility that the proposed project could result in a significant emissions increase, then these requirements do not apply to that project.  Even though a particular modification is not subject to New Source Review, a permit amendment, recordkeeping, or notification may still be required under Minn. R. 7007.1150 - 7007.1500.	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

<p>Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following information:</p> <ol style="list-style-type: none"> <li>1. A description of the project</li> <li>2. Identification of the emission unit(s) whose emissions of an NSR pollutant could be affected</li> <li>3. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the potential emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the unit(s) could have accommodated during the baseline period, an explanation of why the amounts were excluded, and any creditable contemporaneous increases and decreases that were considered in the determination.</li> </ol> <p>The Permittee shall maintain records of this documentation.</p>	<p>Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 &amp; 5</p>
<p>The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project.</p>	<p>Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 &amp; 5</p>
<p>The Permittee must submit a report to the Agency if the annual summed (actual plus potential, if applicable) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain:</p> <ol style="list-style-type: none"> <li>a. The name and ID number of the facility, and the name and telephone number of the facility contact person</li> <li>b. The annual emissions (actual plus potential, if any part of the project was analyzed using potential emissions) for each pollutant for which the preconstruction projection and significant emissions increase are exceeded.</li> <li>c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection.</li> </ol>	<p>Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 &amp; 5</p>
<b>OPERATIONAL REQUIREMENTS</b>	hdr
<p>The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.</p>	<p>40 CFR pt. 50; Minn. Stat. Section 116.07, subds. 4a &amp; 9; Minn. R. 7007.0100, subps. 7A, 7L &amp; 7M; Minn. R. 7007.0800, subps. 1, 2 &amp; 4; Minn. R. 7009.0010-7009.0080.</p>
<p>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.</p>	<p>Minn. R. 7011.0020</p>
<p>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.</p>	<p>Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)</p>
<p>Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O &amp; M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.</p>	<p>Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)</p>
<p>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.</p>	<p>Minn. R. 7019.1000, subp. 4</p>
<p>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.</p>	<p>Minn. R. 7011.0150</p>
<p>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.</p>	<p>Minn. R. 7030.0010 - 7030.0080</p>

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	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
Performance Test Notifications and Submittals:  Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.  Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test  The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. Rs. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2
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 and completion of permit reopening and reissuance. If limits serve to cause more stringent operating conditions, resulting changes to facility operation need to be made immediately. If limits serve to relax current operating conditions, resulting changes to facility operation must not be made prior to issuance of permit amendment with new limit incorporated.	Minn. R. 7017.2025
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).	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)
RECORDKEEPING	hdr
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).	Minn. R. 7007.0800, subp. 5(C)
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.	Minn. R. 7007. 0800, subp. 5(B)
REPORTING/SUBMITTALS	hdr
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.  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.	Minn. R. 7019.1000, subp. 3

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

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.  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.	Minn. R. 7019.1000, subp. 2
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.	Minn. R. 7019.1000, subp. 1
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: 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
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
Extension Requests: 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)
Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3100
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** GP 001 Cupolas**Associated Items:** CE 001 Fabric Filter - High Temperature, i.e., T>250 Degrees F

CE 003 Direct Flame Afterburner

CE 004 Fabric Filter - High Temperature, i.e., T&gt;250 Degrees F

EU 001 Cupola #1

EU 002 Cupola #2

SV 009 Oxidizer stack

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Sulfur Dioxide: less than or equal to 371 lbs/hour using 1-Hour Average . This is a combined limit, for total SO <sub>2</sub> emissions from the two cupolas combined. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Particulate Matter < 10 micron: less than or equal to 23.7 lbs/hour using 24-hour Block Average . This is a combined limit, for total PM <sub>10</sub> emissions from the two cupolas combined. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Carbonyl sulfide: less than or equal to 2.05 lbs/hour using 3-hour Average from SV009. This is a combined limit, for total COS emissions from the two cupolas combined.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot unless required to further reduce emissions to the less stringent limit given in either Minn. R. 7011.0730 or Minn. R. 7011.0735. This limit applies individually to EU001 and EU002.	Minn. R. 7011.0610, subp. 1(A)(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. An exceedance of this opacity standard occurs whenever any one-hour period contains two or more six-minute periods during which the average opacity exceeds 20 percent or whenever any one-hour period contains one or more six-minute periods during which the average opacity exceeds 60 percent.	Minn. R. 7011.0610, subp. 1(A)(2)
Process Throughput: less than or equal to 22.2 tons/hour using 8-hour Block Average . This is a combined limit for the two cupolas. This limit will be amended as specified in Minn. R. 7017.2025 upon completion of each subsequent performance test.	Minn. R. 7017.2025, subp. 3
CONTROL EQUIPMENT REQUIREMENTS (see Subject Items CE001, CE003, and CE004 for specific control equipment operating requirements)	hdr
The Permittee shall operate and maintain the fabric filters and afterburner at all times that any emission unit controlled by the control devices is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate CE001 and CE004 such that they each achieve an overall control efficiency for Total Particulate Matter: greater than or equal to 99 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate CE001 and CE004 such that they each achieve an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain CE003 such that it achieves an overall control efficiency for Carbonyl sulfide: greater than or equal to 95 percent control efficiency	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200
The Permittee shall operate and maintain CE003 such that it achieves an overall control efficiency for Carbon Monoxide: greater than or equal to 99 percent control efficiency	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200
PERFORMANCE TESTING	hdr
Performance Test: due 90 days after Permit Issuance and annually thereafter to measure Sulfur Dioxide (SO <sub>2</sub> ) emissions from SV009. The interval between performance tests shall not exceed 12 months.	Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Permit Issuance to measure emissions of carbonyl sulfide (COS) from SV009.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200



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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item: GP 002 Blow Chambers****Associated Items:** CE 006 Drum Filter

CE 007 Drum Filter

EU 003 Blow Chamber #1

EU 004 Blow Chamber #2

SV 010 Drum Filter stack

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Particulate Matter < 10 micron: less than or equal to 67.38 lbs/hour using 24-hour Block Average . This is a combined limit, for total PM10 emissions from the two blowers combined. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Sulfur Dioxide: less than or equal to 19.14 lbs/hour . This is a combined limit, for total SO2 emissions from the two blow chambers combined. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot unless required to further reduce emissions to the less stringent limit given in either Minn. R. 7011.0730 or Minn. R. 7011.0735. This limit applies individually to EU003 and EU004.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
CONTROL EQUIPMENT REQUIREMENTS (see Subject Items CE006 and CE007 for specific control equipment operating requirements)	hdr
The Permittee shall operate and maintain the filters at all times that any emission unit controlled by the control devices is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 85 percent control efficiency	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 85 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
PERFORMANCE TESTING	hdr
Initial Performance Test: due 180 days after Permit Issuance to measure Sulfur Dioxide (SO2) emissions from SV010. If SO2 is detected in an amount greater than 0.10 lb/hr, then the Permittee must remodel SO2 emissions for the facility (See Table B).	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months starting 03/31/2005 to measure PM10 and Opacity emissions from SV010. The interval between performance tests shall not exceed 60 months. The next test is due on or before 03/31/2010.	Minn. R. 7017.2020, subp. 1

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** GP 003 Material handling**Associated Items:** FS 001 Raw Material Handling and Storage

FS 002 Disposal Site

FS 003 Unpaved Roads

What to do	Why to do it
<p>No person shall 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.</p> <p>No person shall cause or permit a building or its appurtenances or a road, or a driveway, or an open area to be constructed, used, repaired, or demolished without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne. All persons shall take reasonable precautions to prevent the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate. The commissioner may require such reasonable measures as may be necessary to prevent particulate matter from becoming airborne including, but not limited to, paving or frequent clearing of roads, driveways, and parking lots; application of dust-free surfaces; application of water; and the planting and maintenance of vegetative ground cover.</p>	Minn. R. 7011.0150

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** EU 005 Heating Boiler**Associated Items:** SV 001 Boiler Stack

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . Potential emissions based on equipment capacity is approximately 0.007 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. An exceedance of this opacity standard occurs whenever any one-hour period contains two or more six-minute periods during which the average opacity exceeds 20 percent or whenever any one-hour period contains one or more six-minute periods during which the average opacity exceeds 60 percent.	Minn. R. 7011.0515, subp. 2
OPERATING RESTRICTIONS AND MONITORING	hdr
Fuel Restriction: EU 005 fuel is restricted to natural gas only.	Minn. R. 7007.0800, subp. 2
Fuel Type Monitoring: the Permittee shall keep a record log of all fuel types combusted in EU005. Records shall be entered in the log no less frequently than once each calendar half year.	Minn. R. 7007.0800, subps. 4 and 5

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** CE 001 Fabric Filter - High Temperature, i.e., T>250 Degrees F**Associated Items:** EU 001 Cupola #1

EU 002 Cupola #2

GP 001 Cupolas

What to do	Why to do it
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	40 CFR Section 64.7(b); Minn. R. 7017.0200
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 12 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new range shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The range is final upon issuance of a permit amendment incorporating the change. The Permittee shall record the pressure drop at least once every 24 hours when in operation.	40 CFR Section 64.3(a)(2); Minn. R. 7017.0200
The Permittee shall maintain and operate a pressure drop monitoring device that continuously indicates and records the pressure drop across the baghouse.	40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200
The Permittee shall maintain a continuous hard copy readout or computer disk file of the pressure drop readings. Readings outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	40 CFR Section 64.9(b); Minn. R. 7017.0200
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	40 CFR Section 64.7(b); Minn. R. 7017.0200
The Permittee shall calibrate the pressure gauge at least once every calendar year and shall maintain a written record of any action resulting from the calibration.	40 CFR Section 64.3; Minn. R. 7017.0200
The Permittee shall operate and maintain a bag leak detector at all times that the fabric filter and emission unit controlled by the fabric filter is in operation. Operation and maintenance of the bag leak detector shall be included in the O & M Plan.	40 CFR Section 64.3(b)(4); Minn. R. 7017.0200
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	40 CFR Section 64.3; Minn. R. 7017.0200
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the alarm for the bag leak detector is triggered; or - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	40 CFR Section 64.7(d); Minn. R. 7017.0200
Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to notify the existing pressure drop range, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes.	40 CFR Section 64.7(e); Minn. R. 7017.0200
As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report listed in Table B of this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed earlier in Table A of this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64:  1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and  2) Summary information on the number, duration, and cause for monitor downtime incidents.	40 CFR Section 64.9(a)(2); Minn. R. 7017.0200

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name:       USG Interiors Inc - Red Wing  
Permit Number:     04900007 - 003

The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b); Minn. R. 7017.0200
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**TABLE A: LIMITS AND OTHER REQUIREMENTS**

A-11

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** CE 003 Direct Flame Afterburner**Associated Items:** EU 001 Cupola #1

EU 002 Cupola #2

GP 001 Cupolas

What to do	Why to do it
The Permittee shall operate and maintain the thermal oxidizer in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	40 CFR Section 64.7(b); Minn. R. 7017.0200
Temperature: greater than or equal to 1400 degrees F and less than or equal to 1750 degrees F using 3-hour Average at the combustion chamber outlet, unless a new limit is set pursuant to Minn. R. 7017.0205, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new limit shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The limit is final upon issuance of a permit amendment incorporating the change. If the 3-hour rolling average temperature is below the minimum temperature limit, the VOC and CO emitted during that time shall be considered uncontrolled until the average temperature is above the minimum temperature limit. This shall be reported as a deviation.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200
Temperature Monitoring: The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records the combustion chamber temperature of the thermal oxidizer. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Celsius. The recording device shall also calculate the three-hour rolling average combustion chamber temperature. Recorded values outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200; 40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200
Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200; 40 CFR Section 64.3(b); Minn. R. 7017.0200
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required.	40 CFR Section 64.7(b); Minn. R. 7017.0200
The Permittee shall maintain a continuous hard copy readout or computer disk file of the temperature readings and calculated three hour rolling average temperatures for the combustion chamber.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7007.0200; 40 CFR Section 64.9(b); Minn. R. 7017.0200
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	40 CFR Section 64.3; Minn. R. 7017.0200
Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	40 CFR Section 64.3; Minn. R. 7017.0200
Annual Inspection: At least once per calendar year, the Permittee shall conduct an internal inspection of the control device that includes all operating systems of the control device. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection.	40 CFR Section 64.3; Minn. R. 7017.0200
Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken.	40 CFR Section 64.7(d); Minn. R. 7017.0200
Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to notify the existing pressure drop range, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes.	40 CFR Section 64.7(e); Minn. R. 7017.0200

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

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

<p>As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report listed in Table B of this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed earlier in Table A of this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64:</p> <p>1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and</p> <p>2) Summary information on the number, duration, and cause for monitor downtime incidents.</p>	40 CFR Section 64.9(a)(2); Minn. R. 7017.0200
<p>The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.</p>	40 CFR Section 64.9(b); Minn. R. 7017.0200

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

A-13

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** CE 004 Fabric Filter - High Temperature, i.e., T>250 Degrees F**Associated Items:** EU 001 Cupola #1

EU 002 Cupola #2

GP 001 Cupolas

What to do	Why to do it
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	40 CFR Section 64.7(b); Minn. R. 7017.0200
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 12 inches of water column, unless a new range is set pursuant to Minn. R. 7017.0205, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new range shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The range is final upon issuance of a permit amendment incorporating the change. The Permittee shall record the pressure drop at least once every 24 hours when in operation.	40 CFR Section 64.3(a)(2); Minn. R. 7017.0200
The Permittee shall maintain and operate a pressure drop monitoring device that continuously indicates and records the pressure drop across the baghouse.	40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200
The Permittee shall maintain a continuous hard copy readout or computer disk file of the pressure drop readings. Readings outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	40 CFR Section 64.9(b); Minn. R. 7017.0200
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	40 CFR Section 64.7(b); Minn. R. 7017.0200
The Permittee shall calibrate the pressure gauge at least once every calendar year and shall maintain a written record of any action resulting from the calibration.	40 CFR Section 64.3; Minn. R. 7017.0200
The Permittee shall operate and maintain a bag leak detector at all times that the fabric filter and emission unit controlled by the fabric filter is in operation. Operation and maintenance of the bag leak detector shall be included in the O & M Plan.	40 CFR Section 64.3(b)(4); Minn. R. 7017.0200
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	40 CFR Section 64.3; Minn. R. 7017.0200
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the alarm for the bag leak detector is triggered; or - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	40 CFR Section 64.7(d); Minn. R. 7017.0200
Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to notify the existing pressure drop range, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes.	40 CFR Section 64.7(e); Minn. R. 7017.0200
As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report listed in Table B of this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed earlier in Table A of this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64:  1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and  2) Summary information on the number, duration, and cause for monitor downtime incidents.	40 CFR Section 64.9(a)(2); Minn. R. 7017.0200



TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: USG Interiors Inc - Red Wing  
Permit Number: 04900007 - 003

The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b); Minn. R. 7017.0200
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**TABLE A: LIMITS AND OTHER REQUIREMENTS****A-15**

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** CE 006 Drum Filter**Associated Items:** EU 003 Blow Chamber #1

GP 002 Blow Chambers

What to do	Why to do it
The Permittee shall operate and maintain the drum filter at all times that any emission unit controlled by the filter is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the drum filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	40 CFR Section 64.7(b); Minn. R. 7017.0200
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 20 inches of water column, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new range shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The range is final upon issuance of a permit amendment incorporating the change. The Permittee shall record the pressure drop at least once every 24 hours when in operation.	40 CFR Section 64.3(a)(2); Minn. R. 7017.0200
The Permittee shall maintain and operate a pressure drop monitoring device that continuously indicates and records the pressure drop across the drum filter.	40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200
The Permittee shall maintain a continuous hard copy readout or computer disk file of the pressure drop readings. Readings outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	40 CFR Section 64.9(b); Minn. R. 7017.0200
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored drum filter is in operation.	40 CFR Section 64.7(b); Minn. R. 7017.0200
The Permittee shall calibrate the pressure gauge at least once every calendar year and shall maintain a written record of any action resulting from the calibration.	40 CFR Section 64.3; Minn. R. 7017.0200
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	40 CFR Section 64.3; Minn. R. 7017.0200
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the drum filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the drum filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	40 CFR Section 64.7(d); Minn. R. 7017.0200
Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to notify the existing pressure drop range, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes.	40 CFR Section 64.7(e); Minn. R. 7017.0200
As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report listed in Table B of this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed earlier in Table A of this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64:  1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and  2) Summary information on the number, duration, and cause for monitor downtime incidents.	40 CFR Section 64.9(a)(2); Minn. R. 7017.0200
The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b); Minn. R. 7017.0200

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

A-16

07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

**Subject Item:** CE 007 Drum Filter**Associated Items:** EU 004 Blow Chamber #2

GP 002 Blow Chambers

What to do	Why to do it
The Permittee shall operate and maintain the drum filter at all times that any emission unit controlled by the filter is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the drum filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	40 CFR Section 64.7(b); Minn. R. 7017.0200
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 20 inches of water column, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new range shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The range is final upon issuance of a permit amendment incorporating the change. The Permittee shall record the pressure drop at least once every 24 hours when in operation.	40 CFR Section 64.3(a)(2); Minn. R. 7017.0200
The Permittee shall maintain and operate a pressure drop monitoring device that continuously indicates and records the pressure drop across the drum filter.	40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200
The Permittee shall maintain a continuous hard copy readout or computer disk file of the pressure drop readings. Readings outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	40 CFR Section 64.9(b); Minn. R. 7017.0200
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored drum filter is in operation.	40 CFR Section 64.7(b); Minn. R. 7017.0200
The Permittee shall calibrate the pressure gauge at least once every calendar year and shall maintain a written record of any action resulting from the calibration.	40 CFR Section 64.3; Minn. R. 7017.0200
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	40 CFR Section 64.3; Minn. R. 7017.0200
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the drum filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the drum filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	40 CFR Section 64.7(d); Minn. R. 7017.0200
Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to notify the existing pressure drop range, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes.	40 CFR Section 64.7(e); Minn. R. 7017.0200
As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report listed in Table B of this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed earlier in Table A of this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64:  1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and  2) Summary information on the number, duration, and cause for monitor downtime incidents.	40 CFR Section 64.9(a)(2); Minn. R. 7017.0200
The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b); Minn. R. 7017.0200

## TABLE B: SUBMITTALS

B-1 07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

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 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

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 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** 07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Computer Dispersion Modeling Protocol	due 180 days after Initial Performance Test for SO <sub>2</sub> from SV010, if SO <sub>2</sub> emissions greater than 0.10 lb/hr were measured during the performance test. This protocol will describe the proposed SO <sub>2</sub> modeling methodology and input data, in accordance with MPCA modeling guidance for Title V air dispersion modeling analyses. The protocol will be based on operating conditions described in Appendix C of this permit. If modeling shows different operating conditions are necessary, the permit must be amended to reflect such conditions. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Total Facility
Computer Dispersion Modeling Results	due 365 days after Initial Performance Test at SV010 for SO <sub>2</sub> . To be submitted after the MPCA has reviewed and approved the modeling protocol. The submittal should adhere to MPCA modeling guidance for Title V air dispersion modeling analyses. 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 COS emissions. 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.	GP001
Testing Frequency Plan	due 60 days after Initial Performance Test for SO <sub>2</sub> emissions. 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.	GP002

**TABLE B: RECURRENT SUBMITTALS****B-3** 07/11/07

Facility Name: USG Interiors Inc - Red Wing

Permit Number: 04900007 - 003

What to send	When to send	Portion of Facility Affected
Compliance Status Report	due 90 days after end of each calendar half-year following Permit Issuance. The Compliance Schedule Progress Report shall be submitted on a form approved by the Commissioner in accordance with the Compliance Schedule contained in Table C. Progress Reports will not be needed upon completion of all activities contained in the Compliance Schedule.	Total Facility
Semiannual Continuous Compliance Report	due 30 days after end of each calendar half-year following Permit Issuance. 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. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility

## APPENDIX B – Modeled Stack Parameters

**Facility Name:** USG Interiors Inc - Red Wing

**Permit Number:** 04900007-003

The following stack parameters were used in the modeling required by the Title V permit. The modeling results were dated July 18, 2003. Revision of any of these parameters must result in plume dispersion characteristics equivalent to or better than the plume dispersion characteristics modeled for the July 18, 2003 model. Revision of any of these parameters *may* require a permit amendment, as described in Table A of this permit.

### Modeled Parameters

SV ID No.	Modeled Height (feet)	Modeled Diameter (feet)	Modeled Temperature (°F)	Modeled Air Flow (acfm)	Modeled SO <sub>2</sub> (lb/hr)	Modeled NO <sub>x</sub> (lb/hr)	Modeled PM <sub>10</sub> (lb/hr)	Modeled H <sub>2</sub> S (lb/hr)
001	50.7	0	-460	0	0	0.40	0.02	0
009	180.0	7.0	1582	77917	371.0	38.5	23.7	0.47
010 (called SV005 in the modeling analysis)	125.0	9.0	240	179537	0 (see Appendix C)	0.0	67.4	0

## APPENDIX C – SO<sub>2</sub> Modeling

**Facility Name:** USG Interiors Inc - Red Wing

**Permit Number:** 04900007-003

The following stack parameters are to be used in SO<sub>2</sub> modeling, if required following SO<sub>2</sub> testing of SV010. The modeling results dated July 18, 2003, omitted any SO<sub>2</sub> from SV010 (called SV005 in the modeling). It has since been determined that SV010 may be a source of SO<sub>2</sub> emissions. Revision of any of these parameters as a result of modeling results *may* require a permit amendment, as described in Table A of this permit.

### Parameters to Model

SV ID No.	Modeled Height (feet)	Modeled Diameter (feet)	Modeled Temperature (°F)	Modeled Air Flow (acfm)	SO <sub>2</sub> Emission Rate (lb/hr)
SV001	<i>See Appendix B</i>				
SV009	<i>See Appendix B</i>				
SV010	125.0	9.0	240	179537	19.14



## APPENDIX D – Insignificant Activities

**Facility Name:** USG Interiors Inc - Red Wing

**Permit Number:** 04900007-003

### Insignificant Activities and Applicable Requirements

The table below lists the insignificant activities that are currently at the facility and their associated general applicable requirements.

Under Minn. R. 7007.1250, subp. 1(A), the Permittee may add insignificant activities to the stationary source throughout the term of the permit without getting permit amendments. Certain exclusions apply and are listed in Minn. R. 7007.1250, subp.2

<b>Minn. R. 7007.1300 subpart</b>	<b>Rule Description of the Activity</b>	<b>Applicable Requirement</b>
3(A)	Fuel use: space heaters fueled by, kerosene, natural gas, or propane. <ul style="list-style-type: none"><li>Facility has a 0.09 MMBtu/hr gas fired heater</li></ul>	Minn. R. 7011.0510/0515
3(E)	Storage tanks: (1) gasoline storage tanks with a combined total tankage capacity of not more than 10,000 gallons; and (2) nonhazardous air pollutant VOC storage tanks with a combined total tankage capacity of not more than 10,000 gallons of nonhazardous air pollutant VOCs and with a vapor pressure of not more than 1.0 psia at 60 degrees Fahrenheit. <ul style="list-style-type: none"><li>Facility has polyethylene glycol and lubricant storage tanks with a total tankage capacity of approximately 8000 gallons. Information on vapor pressure says only that it is "very low."</li></ul>	Minn. R. 7011.0710/0715
3(J)	Fugitive Emissions from unpaved roads and parking lots <ul style="list-style-type: none"><li>Facility has unpaved roads</li></ul>	Minn. R. 7011.0150
3(K)	Infrequent use of spray paint equipment for routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source, such as spray painting of buildings, machinery, vehicles, and other supporting equipment. <ul style="list-style-type: none"><li>Facility operates an airless spray painter for plant upkeep purposes</li></ul>	Minn. R. 7011.0710/0715

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 04900007-003**

This technical support document 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:**

<b>Applicant/Address</b>	<b>Stationary Source/Address (SIC Code: 3296)</b>
USG Interiors, Inc. P.O. Box 4470 Chicago, IL 60606-4470	27384 Highway 61 Boulevard Red Wing Goodhue County
Contact: Mike Hill Phone: (651) 388-3513	

**1.2. Description of the Permit Action**

This permit action is the reissuance of the Part 70 operating permit. The original Part 70 permit was issued on July 21, 1999. Application for reissuance of the permit was received on January 21, 2004, which is timely under Minn. R. 7007.0400, subp. 2, and 40 CFR § 70.5(a)(1)(iii).

USG produces mineral wool at its plant in Red Wing. The mineral wool is then sent to other facilities to be made into products such as ceiling tiles. Main emission sources involved in this process are the two cupolas, where the stone and slag are heated and melted with coke, the blow chambers where the melt is spun and blown into wool fibers, and the facility boiler, used for heating the facility when the cupolas are not operating. The boiler is fueled with natural gas. There are also storage tanks for diesel fuel, oxygen, polyethylene glycol, and chain lube. All are below the size that would be subject to any federal or state regulation. Fugitive particulate matter emission sources are produced by raw material handling and storage piles, and unpaved roads. The plant is an existing major source under Part 70 and New Source Review.

**1.3 Description of any Changes Allowed with this Permit Issuance**

This permit action includes the addition of modeled stack parameters. The facility was required under the initial Title V permit to complete dispersion modeling. The modeling was completed in July 2003, and the results are incorporated in Appendix B to the permit.

No facility changes or modifications affecting emissions are authorized. However, the Permittee is planning a reconfiguration of the fabric filters controlling PM/PM<sub>10</sub> from the cupolas. At this time, the gases from the two cupolas are combined, and then split between the two fabric filters, and recombined again prior to the afterburner. At some point, the Permittee plans to modify the ducting system such that each cupola will exhaust to its own fabric filter, and then the gases will continue to be combined following the fabric filters, prior to the afterburner.

#### **1.4 Description of All Amendments Issued and Actions Authorized Since the Issuance of the Last Total Facility Permit**

<b>Permit Number and Issuance Date</b>	<b>Action</b>
04900007-002 June 28, 2001	Administrative amendment initiated by MPCA to incorporate requirement to complete dispersion modeling.
NA	Notification of Intent to install a 2 <sup>nd</sup> baghouse on the cupola furnaces (1/31/01)
NA	Notification of Intent to replace Dry Vac screen filters with a drum filter (12/17/02)

#### **1.5. Facility Emissions:**

**Table 1. Total Facility Potential to Emit Summary**

	PM tpy	PM <sub>10</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	368	402	1709	185	255	90	9.0	13.6
Total Facility Actual Emissions (2005) <sup>1</sup>	123	115	1122	265	160	58	HAPs not reported in emission inventory	

**Table 2. Facility Classification**

<b>Classification</b>	<b>Major/Affected Source</b>	<b>Synthetic Minor</b>	<b>Minor</b>
PSD	<b>X</b>		
Part 70 Permit Program	<b>X</b>		
Part 63 NESHAP		<b>X</b>	

## **2. Regulatory and/or Statutory Basis**

### New Source Review

The facility is an existing major source under New Source Review regulations. No changes are authorized by this permit.

### Part 70 Permit Program

The facility is a major source under the Part 70 permit program.

### New Source Performance Standards (NSPS)

There are no New Source Performance Standards applicable to the operations at this facility.

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<sup>1</sup> Actual emissions from cupolas are overstated; they were calculated using the AP-42 (Section 11.18) factors for mineral wool production, which include firing coke in the cupolas. It is not necessary to calculate emissions from coke combustion separately.

### National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is not a major source of HAP emissions, due to federally enforceable conditions limiting the HAP emissions to less than 10 tons of any individual HAP and less than 25 tons of combined HAPs. Thus, no NESHAPs apply. (See Section 3.2 of this Technical Support Document for further discussion of the federally enforceable conditions limiting carbonyl sulfide emissions.)

### Compliance Assurance Monitoring (CAM)

The following units are subject to CAM, as described:

Unit	Pollutant	Limit	Control	CAM Applicable?
EU001/EU002	PM/PM <sub>10</sub>	23.7 lb/hr (at joint stack)	Fabric filters – CE001 & CE004	YES – Large PSEU
	COS	2.05 lb/hr (at joint stack)	Thermal oxidizer – CE003	YES – other PSEU
EU003/EU004	PM/PM <sub>10</sub>	67.38 lb/hr (at joint stack)	Drum filters – CE006 & CE007	YES – Large PSEU

A CAM plan was not included with the Title V reissuance application, as is required by 40 CFR § 64.5(a)(3). A CAM plan to include continuous monitoring was requested during the site visit in September 2006, and in a letter dated February 15, 2007. A CAM plan which did not include continuous monitoring for PM and PM<sub>10</sub> and did not meet the requirements of 40 CFR § 64.4, was received on March 13, 2007, but was not approved. A revised CAM plan was submitted on May 7, 2007. The revised CAM plan included continuous monitoring for all five control devices. The revised CAM plan was approved and incorporated into the permit. The submitted CAM plan is also included in this TSD as Attachment 1.

### Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.0610 Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment

**Table 3. Regulatory Overview of Facility**

EU, GP, or SV	Applicable Regulations	Comments:
GP001	Minn. R. 7009.0020	Limits on SO <sub>2</sub> and PM <sub>10</sub> to ensure emissions do not cause a violation of ambient standards. Limits were derived from computer dispersion modeling completed in 2003.  Limit for COS was added to the permit, since uncontrolled COS based on emission data submitted by the permittee at the time of application for the initial Part 70 permit is > 10 tpy. The original Part 70 permit calculations showed limited COS (oxidized by the TO) at less than major source thresholds, but the limit was left out of the permit.  Limit for NO <sub>x</sub> was not added to permit, since calculated NO <sub>x</sub> based on

EU, GP, or SV	Applicable Regulations	Comments:
		emission factors is less than the modeled rate, which in turn results in a NO <sub>x</sub> concentration less than 20% of the ambient standard.  Limit for H <sub>2</sub> S was not included in the permit, since tested emissions were less than the modeled rate, which in turn resulted in a H <sub>2</sub> S concentration less than 3% of the ambient standard.
	Minn. R. 7011.0610	Cupolas are fossil fuel fired direct heating equipment.
GP002	Minn. R. 7009.0020	Limit on PM <sub>10</sub> , to ensure emissions do not cause a violation of ambient standards. Limit was derived from computer dispersion modeling.  Limit on SO <sub>2</sub> was added to the permit. This limit was based on emission factors published in AP-42. SO <sub>2</sub> was not calculated for the original Title V permit, and SO <sub>2</sub> emissions from this operation were not included in the 2003 modeling analysis. The permit requires that SO <sub>2</sub> emissions from the blow chambers be tested (at SV010). Results of the testing may trigger modeling (see Section 3.1).
	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment.
EU005	Minn. R. 7007.0510	Standards of Performance for Existing Indirect Heating Equipment.

The language “This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act” refers to permit requirements that are mandated by state law rather than by the federal Clean Air Act. The language is to clarify the distinction between permit conditions that are required by federal law and those that are required by state law. State law requirements are not enforceable by U.S. EPA or by citizens under the federal Clean Air Act, but are fully enforceable by the MPCA and citizens under provisions of state law.

### 3. Technical Information

#### 3.1 Air Dispersion Modeling

Air dispersion modeling was completed in 2003, as a requirement of the initial Title V operating permit. The modeling was done using the stack parameters of the new drum filter, which was planned but not yet installed at the time. Modeling showed a need to also increase the stack height of the existing thermal oxidizer stack (cupolas). The modeling results are compared to the ambient standard in Table 4.

**Table 4: Air Dispersion Modeling Results**

Pollutant	Modeled Results (µg/m <sup>3</sup> )	Standard (µg/m <sup>3</sup> )	Modeled as a percentage of standard
SO <sub>2</sub> 1-hr	1252.1	1300	96.3%
SO <sub>2</sub> 3-hr	934.9	1300	71.9%
SO <sub>2</sub> 24-hr	204.2	365	55.9%
SO <sub>2</sub> annual	25.6	60	42.7%

Pollutant	Modeled Results ( $\mu\text{g}/\text{m}^3$ )	Standard ( $\mu\text{g}/\text{m}^3$ )	Modeled as a percentage of standard
PM <sub>10</sub> 24-hr	144.9	150	96.6%
PM <sub>10</sub> annual	40.2	50	80.4%
NO <sub>x</sub> annual	18.96	100	18.96%
H <sub>2</sub> S 1-hr	1.7	70	2.4%

**SO<sub>2</sub>** – The permit already included an hourly limit on SO<sub>2</sub> for the cupolas. SO<sub>2</sub> from the blow chambers (EU003 and EU004) was not calculated for the original Title V permit, and was not modeled. There are available published emission factors for SO<sub>2</sub> emissions from the blow chambers, yielding potential SO<sub>2</sub> emissions of over 19 pounds/hour, so the permit now includes a requirement to repeat modeling for SO<sub>2</sub>, if the measured SO<sub>2</sub> from the drum filter stack (SV010) is greater than 0.10 lb/hr. The purpose of this is to demonstrate that the modeling still does not show violation of the NAAQS/MAAQs when considering the SO<sub>2</sub> that was omitted before, since the previously modeled 1-hour concentration (excluding any SO<sub>2</sub> from SV010) is so close to the ambient standard. The significance of 0.10 lb/hr is that is the threshold below which insignificant activities may be excluded from modeling, per the “MPCA Air Dispersion Modeling Guidance For Minnesota Title V Modeling Requirements And Federal Prevention of Significant Deterioration (PSD) Requirements,” Version 2.2, October 20, 2004.

**PM<sub>10</sub>** – Hourly PM<sub>10</sub> limits were added to the requirements of GP001 (cupolas) and GP002 (blow chambers) to reflect the modeled emission rates, since the modeled PM<sub>10</sub> 24-hour concentration is so close to the ambient standard.

**CO** -- Results from the sulfur dioxide modeling done prior to issuance of the original Title V permit were used to predict carbon monoxide ambient concentrations as well, by scaling the results. In order for the cupola stack to cause a violation of ambient standards, the emission rate from the cupolas would have to be at least 10355 pounds of CO per hour. AP-42 predicts uncontrolled CO emissions of only 250 tons CO per ton of charge, or 5500 lb/hour from the 2 cupolas combined. Since the control efficiency of the oxidizer is 99%, the expected CO emission rate is approximately 55 lb/hr. Because the expected CO emission rate is so far below that which would cause an ambient violation, no emission limit for CO or stack testing are required. The company is required, however, to operate the oxidizer when the cupola is operating, because the modeling results assume the dispersion characteristics of the oxidizer exhaust, namely high velocity and high temperature.

### **3.2 Calculations of Potential to Emit**

Attachment 1 to this TSD contains a summary of the PTE of the Facility, and the detailed spreadsheets and supporting information prepared by the MPCA.

**Cupolas (EU001 and EU002)** – CO and fluoride emissions are calculated based on equipment capacity and emission factors published in AP-42 and WebFIRE (<http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main>). PM emissions are based on the most recent tested emission rate. PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, and H<sub>2</sub>S emissions are calculated based on the emission rate modeled to show compliance with the ambient air quality standards. PM, PM<sub>10</sub>, SO<sub>2</sub>, and H<sub>2</sub>S have been tested. All except SO<sub>2</sub> are well below the modeled emission rates; the permit requires annual testing of SO<sub>2</sub> emissions. Potential NO<sub>x</sub> emissions were modeled and result in ambient concentrations less than 20% of the standards, so no NO<sub>x</sub> emission limit was deemed necessary for the permit. CO emissions are

controlled by 99% by the thermal oxidizer; no emission limit was added to the permit because the controlled CO emissions do not pose a threat to the ambient air quality standards. There are no specific standards to be met by the fluoride emissions, so no associated permit limits are necessary.

Most HAPs were calculated based on the assumptions that (1) half of the load going to the cupola is coke (the load consists of alternating layers of granite and coke), and (2) coke emissions are essentially the same as coal emissions, so emission factors for sub-bituminous coal were used. Even though the oxygen-starved environment of a cupola would likely result in higher emissions of organics than a normal boiler (boiler emission factors were used to estimate emissions), the fact that there is a thermal oxidizer prior to the stack would likely result in those higher organic emissions being oxidized. The permit requires operation of the oxidizer, but no specific limits on HAPs, with the exception of carbonyl sulfide.

Carbonyl sulfide (COS) emissions data from a similar facility were provided by the Permittee with the original Part 70 permit application materials. When the original Part 70 permit was developed, it was assumed that 98% of the COS would be oxidized to CO<sub>2</sub> and SO<sub>2</sub>. The assumption of 98% was not conservative enough, since normal practice is to assume a 95% destruction efficiency for VOC. Also, while the assumed oxidation resulted in the facility not being considered a non-major HAP source, and the TO and requirements for its operation were included in the permit, an emission limit for COS was never included in the permit. A COS limit is added to the permit at this time, including a requirement to test the COS emissions within 180 days of permit issuance.

**Blow Chambers (EU003 and EU004)** – PM<sub>10</sub> emissions were calculated based on the emission rate modeled to show compliance with the ambient air quality standards. PM was calculated based on the emission factor published in WebFIRE (this calculation showed lower PM emissions than calculated, modeled, and tested PM<sub>10</sub> emissions, therefore for the purposes of summarizing PTE for the public notice, PM was assumed to be the same as PM<sub>10</sub>). VOC emissions were calculated based on the emission factors published in WebFIRE. The SO<sub>2</sub> emissions were calculated based on the emission factor published in errata to AP-42 section 11.18 on January 3, 2007.

**Heating Boiler (EU005)** – All emissions (criteria and HAPs) were calculated from emission factors for natural gas combustion published in AP-42.

**Thermal Oxidizer (EU006)** - All emissions (criteria and HAPs) were calculated from emission factors for natural gas combustion published in AP-42.

### **3.3 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 5 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

**Table 5. Periodic Monitoring**

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
Cupolas (EU001 & EU002, or GP001)	SO <sub>2</sub> ≤ 371 lb/hr from the stack (modeling limit)	Annual Performance testing	There is no add on control device in place for SO <sub>2</sub> .
	PM <sub>10</sub> : ≤ 23.7 lb/hr from the stack (modeling limit)	Proper O& M of baghouses Continuous monitoring of PM <sub>10</sub> control (baghouses)	Cupolas are “large” pollutant specific emission units (PSEUs) for PM and PM <sub>10</sub> . Therefore, baghouse operation/parameters must be monitored on a continuous basis.  Baghouses have bag leak detectors.
	PM: variable with airflow and throughput (Minn. R. 7011.0610)		
	COS: ≤ 2.05 lb/hr from the stack (to avoid 40 CFR § 63)	Proper O&M of thermal oxidizer (CE003)	This is an “other” PSEU for COS, therefore only daily monitoring is required. However, the temperature of the existing thermal oxidizer is continuously monitored, as is normal for a TO.
	Opacity: ≤ 20 % with excursions (Minn. R. 7011.0610)	None	It is unlikely that opacity requirements would not be met by emissions from a baghouse or natural gas fired oxidizer (emissions go first through the baghouse, then the oxidizer which is in place to control CO emissions).
	Process Throughput: ≤ 22.2 tons per hour (Minn. R. 7017.2025)	Recordkeeping	
Blow Chambers (EU003 & EU004, or GP002)	PM <sub>10</sub> : ≤ 67.38 lb/hr from the stack (modeling limit)	Periodic performance testing;	Blow chambers are “large” pollutant specific emission units (PSEUs) for PM and PM <sub>10</sub> .
	PM: variable with airflow and		



<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
	throughput (Minn. R. 7011.0715)	continuous monitoring of PM <sub>10</sub> control (drum filters)	Therefore, filter operation/parameters must be monitored on a continuous basis. PM <sub>10</sub> emissions have been tested, and were less than half of the limit.
	Opacity: $\leq 20\%$ (Minn. R. 7011.0715)		
	SO <sub>2</sub> : $\leq 19.14$ lb/hr (PTE/modeling limit)	Periodic performance testing	Emissions will be tested for SO <sub>2</sub> . If SO <sub>2</sub> is detected, SO <sub>2</sub> modeling (for the facility) will have to be revisited, since SO <sub>2</sub> ambient concentrations were modeled in 2003 at 96% of the 1-hour standard.
Heating Boiler (EU005)	PM: $\leq 0.4$ lb/MMBtu (Minn. R. 7011.0515)	None	Boiler is limited to natural gas as a fuel. Potential PM emissions based on published emission factors are approximately 0.7% of the limit; noncompliance is unlikely.
	Opacity: $\leq 20\%$ with excursions (Minn. R. 7011.0515)	None	Visible emissions are unlikely from natural gas combustion

### **3.4 Insignificant Activities**

USG has several operations which are classified as insignificant activities. These are listed in Appendix D to the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities.

**Table 6. Insignificant Activities**

<b>Insignificant Activity</b>	<b>General Applicable Emission limit</b>	<b>Discussion</b>
Fuel use: space heaters fueled by, kerosene, natural gas, or propane	$PM \leq 0.6$ or $0.4$ lb/MMBtu, depending on year constructed $Opacity \leq 20\%$ with exceptions (Minn. R. 7011.0510/0515)	For this unit, based on the fuels used and EPA published emissions factors, it is highly unlikely that it could violate the applicable requirement. In addition, these types of units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Storage Tanks: non-hazardous VOC storage tanks with at total tankage capacity less than 10000 gallons	PM, variable depending on airflow or process weight rate $Opacity \leq 20\%$ (Minn. R. 7011.0715)	It is unlikely that there will be particulate matter or visible emissions from these tanks.
Fugitive Emissions from unpaved roads and parking lots	Requirement to take reasonable measures to prevent PM from becoming airborne (Minn. R. 7011.0150)	The first Title V permit required that the Permittee develop and implement a Fugitive Dust Plan. That was completed and submitted to the agency. The permit requires that the Permittee continue to maintain and abide by that plan.
Infrequent use of spray paint equipment for routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source	PM, variable depending on airflow or process weight rate $Opacity \leq 20\%$ (Minn. R. 7011.0715)	While spray equipment will have the potential to emit particulate matter, these particular activities are not associated with production, so they would be infrequent and usually occur outdoors. Testing or monitoring is not feasible.

### **3.5 Permit Organization**

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be tracked (e.g., limits, submittals, etc.), should be in Table A or B. The main reason is that the appendices are word processing sections and are not part of the tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

### **3.6 Comments Received**

Public Notice Period: 5/25/07 – 6/25/07

EPA 45-day Review Period: 5/25/07 – 7/10/07

Comments were not received from the public during the public notice period.

Comments were <not> received from EPA during their review period. Changes to the permit were <not> made as a result of the comments. *Provide summary of changes.* >

### **4. Conclusion**

Based on the information provided by USG, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 04900007-003 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:            Toni Volkmeier (permit writer/engineer)  
    Greg Berger (enforcement)  
    Andy Place (stack testing)  
    Marshall Cole (peer reviewer)

Attachments:    1.    CAM Plan  
                         2.    PTE Summary and Calculation Spreadsheets  
                         3.    Facility Description and CD-01 Forms

# **Attachment 1**

## **CAM PLAN**

## USG INTERIORS – RED WING CAM PLAN 5/06/07

<b>Control Device</b>	<b>Emission Source Unit</b>	<b>Pollutant</b>	<b>CAM Parameter</b>	<b>Frequency</b>	<b>Recording Method</b>	<b>Corrective Action</b>
Fabric Filter Baghouse	EU001 – Cupola #1 EU002 – Cupola #2	PM PM10	Pressure Drop Across the baghouse -1” to -12” of H <sub>2</sub> O	Monitored continuously through PLC	Logbook and Computer Log	If baghouse deviates from the manufacturer's recommended operating range, cupolas will be taken off line and problem will be corrected.
Fabric Filter Baghouse	EU001 – Cupola #1 EU002 – Cupola #2	PM PM10	Broken Bag Monitoring	Continuous through PLC	Computer Log	If the monitoring system alarms, the system will be taken off line and problem will be corrected.

Thermal Oxidizer	EU001 - Cupola #1 EU002 – Cupola #2	COS	Operating Temperature Range of 1400 to 1750 degrees F	Temperature is recorded every 15 minutes and a 3-hr average is monitored	Datalogger	A redundant system is in place for temperature monitoring. If temperate deviates from the recommended operating range, operator will take corrective action.
Thermal Oxidizer	EU001 - Cupola #1 EU002 – Cupola #2	COS	Burner Inspection	A visual inspection of the burner and flame will be conducted daily. An annual inspection will be conduction on the burner.	Logbook	Any deficiencies found in the annual inspection will be corrected.
Drum Filter #1	EU003 – Blowchamber #1	PM PM10	Pressure Drop Across the drum filter -1” to -20” of H <sub>2</sub> O	Monitored continuously through PLC	Logbook and Computer Log	If the drum filter deviates from the manufacturer’s recommended operating range, cupola will be taken off line and problem will be corrected.
Drum Filter #2	EU004 – Blowchamber #2	PM PM10	Pressure Drop Across the drum filter -1” to -20” of H <sub>2</sub> O	Monitored continuously through PLC	Logbook and Computer Log	If the drum filter deviates from the manufacturer’s recommended operating range, cupola will be taken off line and problem will be corrected.