

AIR EMISSION PERMIT NO. 01700006- 001

IS ISSUED TO

USG Corporation
for
USG INTERIORS, INC.

35 Arch Street
Cloquet, Carlton County, MN 55720

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
Total Facility Operating Permit

Application Date
03/07/1995, revised December 12/02/2002

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: December 31, 2003

Expiration: December 31, 2008
All Title I Conditions do not expire.

Ann M. Foss
Major Facilities Section Manager
Majors and Remediation Division

for Sherryl Corrigan
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.

Notwithstanding the foregoing permit shield protection, the MPCA and U.S. Environmental Protection Agency (EPA) specifically reserve, and the Permittee accepts the permit knowing that the MPCA or EPA may investigate, initiate and pursue enforcement action for continuing violations or violations that occurred prior to or at the time of permit issuance and that may be addressed by conditions in this permit. Enforcement action may include, but is not limited to, further corrective action and penalties.

FACILITY DESCRIPTION:

USG Interiors manufactures acoustical ceiling tiles at their plant in Cloquet, Minnesota. The facility uses gypsum, starch, mineral wool, perlite, clay, recycled newspaper, and other components to form a slurry out of which the ceiling tiles are formed. A "mat" is made of the slurry, which is then dried, cut and coated to make a variety of ceiling tiles. The primary sources of emissions at the facility are particulate emissions from drying and cutting the board material (controlled by baghouses) and from spray application of coating materials (controlled by panel filters). Other emission sources are fuel combustion (natural gas) and some Volatile Organic Compounds (VOC) from coatings used.

The facility is an existing major source under Federal New Source Review regulations. The facility is not a major source of Hazardous Air Pollutant (HAP) emissions due to federally enforceable emission limitations.

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

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

Subject Item:**Total Facility**

What to do	Why to do it
SOURCE-SPECIFIC REQUIREMENTS	hdr
This permit shall not alter or affect the liability of an owner or operator for any violation of applicable requirements prior to or at the time of permit issuance.	Minn. R. 7007.1800 (C)(2)
OPERATIONAL REQUIREMENTS	hdr
Applicability Procedures: When determining whether a proposed change or modification will be subject to New Source Review, follow the applicability procedures described in 40 CFR Section 52.21(a).	Title I Condition: 40 CFR Section 52.21(a)
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
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 & M plan shall identify all air pollution control equipment and shall include a preventative maintenance program for that equipment, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment 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 the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
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.	Minn. R. 7017.2025

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

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, unless a separate requirement call for a longer retention period. 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)
Determining whether a modification to an existing emissions unit is subject to New Source Review. These requirements apply when there is a reasonable possibility that a proposed project that is not part of a major modification may result in a significant emissions increase, when the Permittee elected to use the actual-to-projected-actual method for calculating the emissions increase. Before beginning actual construction, the Permittee shall document and maintain a record of the following information: 1. A description of the project. 2. Identification of the emission unit(s) whose emissions could be affected. 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 projected actual emissions, and the amount of emissions excluded that were due to increases not associated with the modification and that the unit could have accommodated prior to the mod.	Title I Condition: 40 CFR Section 52.21(r)(6)
4. The Permittee shall monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions unit associated with the modification, and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period fo 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations afther the change if the project increases the design capacity of the unit(s) or the potential to emit the regulated NSR pollutant.	continued from above
5. The Permittee must submit a report to the MPCA if the annual emissions exceed the projected values. The report shall be submitted to the MPCA within 60 days after the end of the year. The report shall contain: a. The name, address, and phone number of the facility b. The annual emissions quantified c. Any other information, such as an explanation as to why the emissions differ from the preconstruction projection. Be advised that although you may determine that a modification is not subject to New Source Review, a permit amendment, additional recordkeepingm, or notification may be required under Minn. R. 7007.1150 - 7007.1500.	continued from above
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

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

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 discovering, 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 91 days after end of each calendar year following permit issuance (April 1). To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3010
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

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 001 HAP Usage Limits

Associated Items:

- EU 015 No. 5 Despatch Spray Booth - North
- EU 016 No. 5 Despatch Spray Booth - South
- EU 024 Burdette Line Spray Booth
- EU 029 Ceramic Line Spray Booth
- EU 032 Silent Line Adhesive Booth
- EU 046 Constellation Prime Coat Spray Booth
- EU 047 Constellation Finish Coat Spray Booth
- EU 071 Line 5 Prime Coat Spray Booth
- EU 073 Line 5 Finish Coat Spray Booth #1
- EU 077 Line 5 Board Dryer
- EU 080 Line 3 Finish Coat Spray Booth
- EU 083 Line 5 Finish Coat Spray Booth #2
- EU 092 Constellation Edge Spray #1
- EU 093 Constellation Edge Spray #2
- EU 094 IBM Spray Booth
- EU 095 Line 3 prime application 1 (roll coat)
- EU 102 Line 3 prime application 2 (roll coat)
- EU 103 Constellation backcoat application 1 (roll coat)
- EU 104 Constellation backcoat application 2 (roll coat)
- EU 106 Line 5 prime coat #2 (roll coat)
- EU 107 Line 5 prime coat #1 (roll coat)

What to do	Why to do it
USAGE LIMITS	hdr
Formaldehyde: less than or equal to 9.2 tons/year using 12-month Rolling Sum to be calculated daily for the previous 12 months, as described in this permit. Calculations shall include formaldehyde used by each of the sources listed in GP001.	Title I Condition: To avoid major source classification under 40 CFR Section 63.2
Hexane: less than or equal to 2.9 tons/year using 12-month Rolling Sum to be calculated daily for the previous 12 months, as described in this permit. Calculations shall include any hexane used by each of the sources listed in GP001.	Title I Condition: To avoid major source classification under 40 CFR Section 63.2
Single HAP Usage: less than or equal to 9.5 tons/year using 365-day Rolling Sum (other than formaldehyde or hexane), to be calculated daily for the previous 365 days, as described in this permit. Calculations shall include each HAP from the sources listed in GP001.	Title I Condition: To avoid major source classification under 40 CFR Section 63.2
Total HAP Usage: less than or equal to 17.1 tons/year using 12-month Rolling Sum , to be calculated daily for the previous 12 months, as described in this permit. Calculations shall include each HAP from the sources listed in GP001.	Title I Condition: To avoid major source classification under 40 CFR Section 63.2
RECORDKEEPING	hdr
HAP Content: The HAP content of all materials shall be determined by the Material Safety Data Sheet (MSDS) or Certificate of Analysis (COA) provided by the material provider. If the MSDS or COA gives the HAP content as a range, the highest number in the range shall be used for all permit calculations. Alternative methods approved by the MPCA may be used to determine the HAP content. The MPCA reserves the right to require the Permittee to determine the HAP content of any material according to EPA and/or ASTM reference methods. If an EPA or ASTM reference method is used for material content determination, the data obtained shall supersede the MSDS or COA data. A copy of the MSDS, COA, or other record of the HAP content shall be kept at the facility.	Minn. R. 7007.0800, subp. 4 and 5
Daily Recordkeeping: Each day, record the quantity (gallons) and HAP content (pounds per gallon) of each HAP-containing material (except melamine resin) used in the sources listed in GP001. Include usage of Formaldehyde that is reported as emitted at prime coat dryer stacks.	Title I Condition: To avoid major source classification under 40 CFR Section 63.2
Monthly Recordkeeping: By the 15th day of each month, record the quantity and HAP content of melamine resin used in the sources listed in GP001.	Title I Condition: To avoid major source classification under 40 CFR Section 63.2
CALCULATIONS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

<p>Daily Calculations: Single HAP Emissions (other than formaldehyde and hexane)</p> <p>Daily HAP emissions shall be calculated as follows for each individual HAP:</p> $\text{HAP(I)} = \{[\text{MAT(1)} \times \text{HC(1)}] + [\text{MAT(2)} \times \text{HC(2)}] + [\text{MAT(3)} \times \text{HC(3)}] + \dots \text{etc.}\} / 2000$ <p>where: HAP(I) = emission of the individual HAP, in tons/day MAT(#) = the quantity of each material (containing the individual HAP) used during the previous day, in gallons HC(#) = the quantity of the individual HAP in MAT(#), in pounds/gallon</p> <p>The 365 day rolling sum is calculated by adding the quantities of each individual HAP(I) (except formaldehyde and hexane) for the previous 365 days.</p>	Minn. R. 7007.0800, subp. 4 and 5
<p>Monthly Calculations - Hexane and Formaldehyde Use</p> <p>By the 15th day of each month, calculate the total gallons of each type of hexane-containing material used in the units listed in GP001 during the previous month, and the associated hexane content (pounds per gallon) for each type.</p> <p>By the 15th day of each month, calculate the total gallons of each type of formaldehyde-containing material (except melamine resin) used in the units listed in GP001 during the previous month, and the associated formaldehyde content (pounds per gallon) for each type.</p>	Minn. R. 7007.0800, subp. 4 and 5
<p>Monthly Calculations: Formaldehyde and Hexane Emissions</p> <p>Monthly emissions shall be calculated as follows for formaldehyde and hexane:</p> $\text{HEX(N)} = \{[\text{HMAT(1)} \times \text{H(1)}] + [\text{HMAT(2)} \times \text{H(2)}] + [\text{HMAT(3)} \times \text{H(3)}] + \dots \text{etc.}\} / 2000$ $\text{FOR(N)} = \{[\text{FMAT(1)} \times \text{F(1)}] + [\text{FMAT(2)} \times \text{F(2)}] + [\text{FMAT(3)} \times \text{F(3)}] + \dots \text{etc.}\} / 2000$ <p>where: HEX(N) = emissions of hexane, in tons/month FOR(N) = emissions of formaldehyde, in tons/month HMAT(#) = the total quantity of each hexane-containing material used during the previous month, in gallons FMAT(#) = the total quantity of each formaldehyde-containing material used during the previous month, in gallons H(#) = the quantity of the hexane in HMAT(#), in pounds/gallon F(#) = the quantity of the formaldehyde in FMAT(#), in pounds/gallon</p> <p>The 12 month rolling sums are calculated by adding the values of HEX(N) for the previous 12 months, and the values of FOR(N) for the previous 12 months.</p>	Minn. R. 7007.0800, subp. 4 and 5
<p>Monthly Calculations: Total HAPs</p> <p>By the 15th day of each month, total HAPs for the previous month are to be calculated by summing the totals of each of the individual HAPs from the previous calendar month.</p> <p>The 12-month rolling sum is calculated by summing the Total HAPs calculated for each of the previous 12 calendar months.</p>	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 002 Material Handling/Storage - MN Rule Requirements

Associated Items: EU 014 Relay Baghouse (process unit)
 EU 028 Line 3 DREC Disposal Baghouse (process unit)
 EU 036 Spinks Clay Silo
 EU 037 Starch Silo
 EU 038 Gypsum Silo
 EU 039 Starch/Clay Rail Unload
 EU 040 Starch Day Bin
 EU 041 CTS-1 Clay Day Bin
 EU 042 Constellation Clay Bin
 EU 043 Constellation Starch Bin
 EU 044 Constellation Stucco Bin
 EU 060 No. 1 Perlite Storage Silo
 EU 064 Clay Storage Silo
 EU 067 No. 2 Perlite Storage Silo
 EU 068 No. 3 Perlite Storage Silo
 EU 084 AMS Clay Day Bin
 EU 085 AMS Gypsum Day Bin
 EU 086 AMS Starch Day Bin
 EU 090 Dust Storage Silo Baghouse (process equipment)

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735. This limit applies individually to each unit listed in GP002. (See also Subject Items EU042, EU043, and EU044.)	Minn. R. 7011.0715, subp. 1(A) (those units installed on or after July 9, 1969) and Minn. R. 7011.0710, subp. 1(A) (those units installed prior to July 9, 1969)
Opacity: less than or equal to 20 percent opacity . This limit applies individually to each unit listed in GP002 which was installed on or after July 9, 1969 (all listed units except EU036 - EU039, and EU064).	Minn. R. 7011.0715, subp. 1(B)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies individually to each unit listed in GP002 which was installed prior to July 9, 1969 (EU036 - EU039, and EU064).	Minn. R. 7011.0710, subp. 1(B)
CONTROL REQUIREMENTS (CE014, CE015, CE016, CE017, CE018, CE019, CE020, CE021, CE022, CE025, CE026, CE027, CE028, CE033, CE034, CE035, CE037, CE038)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. See Subject Item GP007 for further baghouse operating requirements.	Minn. R. 7007.0800, subp. 2 and 14
Total Particulate Matter: greater than or equal to 99 percent control efficiency (except EU014 and EU028 - these units do not require additional control)	Minn. R. 7007.0800, subp. 2 and 14
TESTING REQUIREMENTS	hdr
Performance Test: due 180 days after Permit Issuance to measure PM emissions from EU090	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

<p>Performance Test Notifications and Submittals;</p> <p>Performance Test Notification (written): due 30 days before each Performance Test</p> <p>Performance Test Plan: due 30 days before each Performance Test</p> <p>Performance Test Pre-Test Meeting: due 7 day before each Performance Test</p> <p>Performance Test Report: due 45 days after each Performance Test (see note below)</p> <p>Performance Test Report - Microfiche Copy: due 105 day after each Performance Test.</p> <p>The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2</p>
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TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 003 Perlite Expanders - MN Rule Requirements**Associated Items:** EU 006 Perlite Expander 1

EU 008 Perlite Expander 2

EU 010 Perlite Expander 3

EU 061 Perlite Expander 4

EU 078 Perlite Expander 5

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735. This limit applies individually to each unit listed in GP003. (See also Subject Item EU078.)	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. This limit applies individually to each unit listed in GP003.	Minn. R. 7011.0610, subp. 1(A)(2)
Fuel type: Natural gas only	Minn. R. 7005.0100, subp. 35a
CONTROL REQUIREMENTS (CE003, CE004, CE005, CE023, CE039)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. See Subject Item GP010 for further baghouse operating requirements.	Minn. R. 7007.0800, subp. 2 and 14
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 004 Spray Booths - MN Rule Requirements

Associated Items: EU 015 No. 5 Despatch Spray Booth - North
EU 016 No. 5 Despatch Spray Booth - South
EU 024 Burdette Line Spray Booth
EU 029 Ceramic Line Spray Booth
EU 032 Silent Line Adhesive Booth
EU 046 Constellation Prime Coat Spray Booth
EU 047 Constellation Finish Coat Spray Booth
EU 071 Line 5 Prime Coat Spray Booth
EU 073 Line 5 Finish Coat Spray Booth #1
EU 080 Line 3 Finish Coat Spray Booth
EU 083 Line 5 Finish Coat Spray Booth #2
EU 092 Constellation Edge Spray #1
EU 093 Constellation Edge Spray #2
EU 094 IBM Spray Booth

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735. This limit applies individually to each unit listed in GP004.	Minn. R. 7011.0715, subp. 1(A) (those units installed on or after July 9, 1969) and Minn. R. 7011.0710, subp. 1(A) (those units installed prior to July 9, 1969)
(See also Subject Item GP011.)	
Opacity: less than or equal to 20 percent opacity . This limit applies individually to each unit listed in GP004 which was installed on or after July 9, 1060 (all except EU024 and EU029).	Minn. R. 7011.0715, subp. 1(B)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies individually to each unit listed in GP002 which was installed prior to July 9, 1969 (EU024 and EU029).	Minn. R. 7011.0710, subp. 1(B)
CONTROL REQUIREMENTS (CE040, CE041, CE042, CE043, CE044, CE045, CE046, CE047, CE048, CE049, CE050, CE051, and CE052)	hdr
The Permittee shall operate and maintain the control equipment at all times that any emission unit controlled by the control equipment is in operation.	Minn. R. 7007.0800, subp. 2 and 14
See Subject Items GP008 and GP009 for further filter operating requirements.	
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 73.6 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
TESTING REQUIREMENTS	hdr
Performance Test: due 30 days after Permit Issuance to measure PM and PM10 emissions from EU073, EU080, and EU083. Total hourly emissions from each for purposes of determining NSR applicability are to be determined as described in Note 1 below. Tests should be conducted while spraying the coating with the highest solids content.	Minn. R. 7017.2020, subp. 1
Performance Test: due 180 days after Permit Issuance to measure PM emissions from EU015, EU071, and EU092.	Minn. R. 7017.2020, subp. 1
In the event that the test results are to be used to determine NSR applicability, follow instructions under NOTE 1, below.	
Performance Test: due 365 days after Permit Issuance to measure PM emissions from EU016, EU024, and EU029, unless an alternate testing schedule is proposed and approved following MPCA's review of the results of the test done for EU015.	Minn. R. 7017.2020, subp. 1
(The performance test results for EU015 cannot be used for EU016, EU024, or EU029 for purposes of calculating actual emissions for the annual emission inventory.)	
In the event that the test results are to be used to determine NSR applicability, follow instructions under NOTE 1, below.	

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

<p>Performance Test: due 365 days after Permit Issuance to measure PM emissions from EU093, unless an alternate testing schedule is proposed and approved following MPCA's review of the results of the test done for EU092.</p> <p>(The performance test results for EU092 cannot be used for EU093 for purposes of calculating actual emissions for the annual emission inventory.)</p> <p>In the event that the test results are to be used to determine NSR applicability, follow instructions under NOTE 1, below.</p>	Minn. R. 7017.2020, subp. 1
<p>Performance Test: due 90 days after Notification of the Actual Date of Initial Startup of stack venting emissions from EU094 outside, to measure PM emissions from EU094.</p> <p>In the event that the test results are to be used to determine NSR applicability, follow instructions under NOTE 1, below.</p>	Minn. R. 7017.2020, subp. 1
<p>Performance Test Notifications and Submittals;</p> <p>Performance Test Notification (written): due 30 days before each Performance Test</p> <p>Performance Test Plan: due 30 days before each Performance Test</p> <p>Performance Test Pre-Test Meeting: due 7 day before each Performance Test</p> <p>Performance Test Report: due 45 days after each Performance Test (see note below)</p> <p>Performance Test Report - Microfiche Copy: due 105 day after each Performance Test.</p> <p>The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2
<p>NOTE 1: Testing Spray Booths to Determine NSR Applicability (applies to PM and PM10)</p> <p>In the event that performance test results are to be used to determine applicability of New Source Review, one of the following methods must be applied:</p> <p>Option 1: Directly test the uncollected emissions at the same time as the stack emissions, by constructing a temporary total enclosure around the entire booth.</p> <p>Option 2: Test only the emissions from the stack. Assuming a hood capture efficiency of 80% and a panel filter collection efficiency of 92%, for an overall control efficiency of 73.6%, back-calculate the total emissions using the following equation: $TE = (4.125 \times S)$ <p>Where: TE = the total emission rate from the unit, lb/hr S = tested emission rate from the stack, lb/hr</p></p>	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 005 Ovens/Dryers - MN Rule Requirements

Associated Items: EU 002 Line 3 Board Dryer
 EU 017 No. 5 Despatch Dryer
 EU 020 Line 3 Prime Coat Dryer #1
 EU 021 Line 3 Finish Coat Dryer
 EU 025 Burdette Line Dryer
 EU 030 Ceramic Ipsen Board Oven
 EU 031 Ceramic Line Fanin Dryer
 EU 045 Constellation Board Dryer - entire
 EU 048 Constellation Back Coat Dryer #2
 EU 049 Constellation Prime Coat Dryer
 EU 050 Constellation Finish Coat Dryer
 EU 057 Constellation Back Coat Dryer #1
 EU 065 Line 3 Prime Coat Dryer #2
 EU 070 Line 5 Prime Coat Dryer #1
 EU 072 Line 5 Prime Coat Dryer #2
 EU 074 Line 5 Finish Coat Dryer #1
 EU 077 Line 5 Board Dryer
 EU 079 Line 5 Finish Coat Dryer #2
 EU 096 Constellation Bundle Dryer

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. This limit applies individually to each unit listed in GP005. (See also Subject Item EU077.)	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. This limit applies individually to each unit listed in GP005.	Minn. R. 7011.0610, subp. 1(A)(2)
Fuel type: Natural gas only	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 006 Cutting/Sawing/Finishing Operations - MN Rule Requirements

Associated Items: EU 013 Despatch Line Finish Sawing & Kerfing

EU 019 No. 3 Trimmer

EU 022 Line 3 Board Grinding

EU 023 Burdette Line Sawing & Kerfing

EU 027 Eroder

EU 033 Constellation Line Trimming

EU 058 Silent Line

EU 069 Ceramic Line

EU 087 Line 5 Board Grinding

EU 088 Line 5 Sawing & Kerfing

EU 089 Line 5 Trimming

EU 097 Line 3 Board Cutting

EU 098 Line 3 Finish sawing and kerfing

EU 099 Constellation Line board grinding

EU 100 Constellation Line sawing and kerfing

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735. This limit applies individually to each unit listed in GP006. (See also Subject Items SV027 and EU069)	Minn. R. 7011.0715, subp. 1(A) (those units installed on or after July 9, 1969) and Minn. R. 7011.0710, subp. 1(A) (those units installed prior to July 9, 1969)
Opacity: less than or equal to 20 percent opacity . This limit applies individually to each unit listed in GP006 which was installed on or after July 9, 1969 (all except EU022).	Minn. R. 7011.0715, subp. 1(B)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies individually to each unit listed in GP002 which was installed prior to July 9, 1969 (EU022).	Minn. R. 7011.0710, subp. 1(B)
CONTROL REQUIREMENTS (CE006, CE008, CE009, CE010, CE011, CE013, CE029, CE030, CE031, CE032, CE036)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. See Subject Item GP007 for further baghouse operating requirements.	Minn. R. 7007.0800, subp. 2 and 14
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 007 Low Temperature Baghouse Requirements

Associated Items: CE 006 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 008 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 009 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 011 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 013 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 014 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 015 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 016 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 017 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 018 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 019 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 020 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 021 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 022 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 025 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 026 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 027 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 028 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 029 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 030 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 031 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 032 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 033 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 034 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 035 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 036 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
CE 038 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

What to do	Why to do it
Pressure Drop: greater than or equal to 0.25 inches of water column and less than or equal to 6.0 inches of water column , unless a new range is set pursuant to Minn. R. 7017.0225, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Minn. R. 7011.0080
The Permittee shall operate and maintain each 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.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Visible Emissions: The Permittee shall check the stack of each fabric filter included in GP007 for any visible emissions, once each day of operation during daylight hours. During inclement weather, the Permittee shall read and record the pressure drop across the fabric filter, once each day of operation.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Recordkeeping of Visible Emissions and Pressure Drop: The Permittee shall record the time and date of each visible emission inspection and/or pressure drop reading, and whether or not any visible emissions were observed, and whether or not the observed pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
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.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

<p>Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur:</p> <ul style="list-style-type: none">- visible emissions are observed; or- the recorded pressure drop is outside the required operating range; or- the fabric filter or any of its components are found during an inspection to need repair. <p>Corrective actions shall return the pressure drop to within the permitted range, eliminate visible emissions, 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 equipment. The Permittee shall keep a record of the type and date of any corrective action taken.</p>	<p>Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2</p>
<p>Hood Evaluation: For each baghouse listed in GP007 which does not conform to the requirements for a total enclosure, the Permittee shall maintain a copy of the hood evaluation on site, as well as an annual record for fan rotation speed, fan power draw, or face velocity of the hood, or other comparable air flow indication method.</p>	<p>Minn. R. 7007, subp. 4, 5 and 14</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 008 Panel Filter Requirements**Associated Items:** CE 040 Mat or Panel Filter

CE 041 Mat or Panel Filter

CE 042 Mat or Panel Filter

CE 043 Mat or Panel Filter

CE 044 Mat or Panel Filter

CE 047 Mat or Panel Filter

CE 048 Mat or Panel Filter

CE 049 Mat or Panel Filter

CE 050 Mat or Panel Filter

CE 051 Mat or Panel Filter

CE 052 Mat or Panel Filter

What to do	Why to do it
The Permittee shall operate and maintain each panel 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.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Daily Inspections: Once each operating day, the Permittee shall visually inspect each panel filter with respect to alignment, saturation, tears, holes, and any other condition that may affect the filter's performance. The Permittee shall maintain a daily written record of filter inspections.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Corrective Actions: If the filters or any of their components are found during the inspections to need repair, the permittee shall take corrective action as soon as possible. Corrective actions shall 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 filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Hood Evaluation: For each filter listed in GP008 which does not conform to the requirements for a total enclosure, the Permittee shall maintain a copy of the hood evaluation on site, as well as an annual record for fan rotation speed, fan power draw, or face velocity of the hood, or other comparable air flow indication method.	Minn. R. 7007, subp. 4, 5 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 009 Continuous Roll Filter Requirements**Associated Items:** CE 045 Continuous roll fiberglass filter

CE 046 Continuous roll fiberglass filter

What to do	Why to do it
Pressure Drop: greater than or equal to 0 inches of water column and less than or equal to 0.6 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.	Minn. R. 7011.0080
The Permittee shall operate and maintain each 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.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Pressure Drop Readings: The Permittee shall read and record the pressure drop once each operating day.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Recordkeeping of Pressure Drop: The Permittee shall record the time and date of each pressure drop reading, and whether or not the observed pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Daily Inspections: Once each operating day, the Permittee shall visually inspect the filter with respect to alignment, saturation, tears, holes, and any other condition that may affect the filter's performance. The Permittee shall maintain a daily written record of filter inspections.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
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 filter or any of its components are found during an inspection 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 equipment. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Hood Evaluation: For each filter listed in GP009 which does not conform to the requirements for a total enclosure, the Permittee shall maintain a copy of the hood evaluation on site, as well as an annual record for fan rotation speed, fan power draw, or face velocity of the hood, or other comparable air flow indication method.	Minn. R. 7007, subp. 4, 5 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 010 Medium- and High-Temperature Baghouse Requirements**Associated Items:** CE 003 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F

CE 004 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F

CE 005 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F

CE 023 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F

CE 039 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F

What to do	Why to do it
Pressure Drop: greater than or equal to 0.25 inches of water column and less than or equal to 6.0 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.	Minn. R. 7011.0080
The Permittee shall operate and maintain each 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.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Pressure Drop: The Permittee shall read and record the pressure drop across each fabric filter included in GP010, once each day of operation.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Recordkeeping Pressure Drop: The Permittee shall record the time and date of each pressure drop reading, and whether or not the observed pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
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.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2
Corrective Actions: The Permittee shall take corrective action as soon as possible if the recorded pressure drop is outside the required operating range, or the fabric filter or any of its components are found during an inspection 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 equipment. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5, and 14; Minn. R. 7011.0075, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: GP 011 Constellation Coating Booths**Associated Items:** EU 046 Constellation Prime Coat Spray Booth

EU 047 Constellation Finish Coat Spray Booth

What to do	Why to do it
EMISSION LIMITS (see also GP004)	hdr
Total Particulate Matter: less than or equal to 2.7 lbs/hour from each booth, including emissions not drawn through the filter	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: less than or equal to 2.7 lbs/hour from each booth, including emissions not drawn through the filter	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Material Usage: less than or equal to 1200 gallons/day of primer at EU046 and EU047 combined.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Material Usage: less than or equal to 4800 gallons/day of finish paint at EU046 and EU047 combined.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
CONTROL REQUIREMENTS (CE045 and CE046)	hdr
The Permittee shall operate and maintain the control equipment at all times that any emission unit controlled by the control equipment is in operation.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
See Subject Item GP009 for further filter operating requirements.	
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 73.6 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
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 73.6 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
TESTING REQUIREMENTS	hdr
Performance Test: due 90 days after Permit Issuance to determine PM and PM10 emissions from EU046. Option 1: Construct a temporary total enclosure around the unit such that the Performance Tests collect all particulate generated by the unit. Option 2: Measure emissions from the stack only, then calculate total PM and PM10 emissions using the equation $TE = 4.125 \times S$, where: TE = total PM or PM10 emission rate (lb/hr) S = PM or PM10 emission rate measured at the stack (lb/hr)	Title I Condition: Testing for limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Performance Test: due 90 days after Permit Issuance to determine PM and PM10 emissions from EU047. Option 1: Construct a temporary total enclosure around the unit such that the Performance Tests collect all particulate generated by the unit. Option 2: Measure emissions from the stack only, then calculate total PM and PM10 emissions using the equation $TE = 4.125 \times S$, where: TE = total PM or PM10 emission rate (lb/hr) S = PM or PM10 emission rate measured at the stack (lb/hr)	Title I Condition: Testing for limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Performance Test Notifications and Submittals; 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 day before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 day 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. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2
RECORDKEEPING	hdr
Daily Recordkeeping: Each day, record the quantity of paint and primer material used at EU046 and EU047.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: SV 027 Constellation Line Trimming, Grinding, etc.**Associated Items:** EU 033 Constellation Line Trimming

EU 099 Constellation Line board grinding

EU 100 Constellation Line sawing and kerfing

What to do	Why to do it
EMISSION LIMITS (see also GP006)	hdr
Total Particulate Matter: less than or equal to 5.123 lbs/hour for the 3 units combined	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: less than or equal to 5.123 lbs/hour for the 3 units combined	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
CONTROL REQUIREMENTS (CE013)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
See Subject Item GP007 for further baghouse operating requirements.	
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 042 Constellation Clay Bin**Associated Items:** CE 020 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

GP 002 Material Handling/Storage - MN Rule Requirements

SV 035 Constellation Clay Bin

What to do	Why to do it
EMISSION LIMITS (see also GP002)	hdr
Total Particulate Matter: less than or equal to 0.051 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: less than or equal to 0.051 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
CONTROL REQUIREMENTS (CE020)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. See Subject Item GP007 for further baghouse operating requirements.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 043 Constellation Starch Bin**Associated Items:** CE 021 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

GP 002 Material Handling/Storage - MN Rule Requirements

SV 036 Constellation Starch Bin

What to do	Why to do it
EMISSION LIMITS (see also GP002)	hdr
Total Particulate Matter: less than or equal to 0.051 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: less than or equal to 0.051 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
CONTROL REQUIREMENTS (CE021)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. <u>See Subject Item GP007 for further baghouse operating requirements.</u>	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 044 Constellation Stucco Bin**Associated Items:** CE 022 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

GP 002 Material Handling/Storage - MN Rule Requirements

SV 037 Constellation Stucco Bin

What to do	Why to do it
EMISSION LIMITS (see also GP002)	hdr
Total Particulate Matter: less than or equal to 0.051 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: less than or equal to 0.051 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
CONTROL REQUIREMENTS (CE022)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. <u>See Subject Item GP007 for further baghouse operating requirements.</u>	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 404B-89-I/O-1, 4/11/89

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 069 Ceramic Line

Associated Items: CE 036 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 GP 006 Cutting/Sawing/Finishing Operations - MN Rule Requirements
 SV 059 Ceramic Line

What to do	Why to do it
EMISSION LIMITS (see also GP006)	hdr
Total Particulate Matter: less than or equal to 0.514 lbs/hour . Potential emissions based on equipment capacity and control equipment operation are approximately 0.04 lb/hr.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Particulate Matter < 10 micron: less than or equal to 0.514 lbs/hour . Potential emissions based on equipment capacity and control equipment operation are approximately 0.03 lb/hr.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
CONTROL REQUIREMENTS (CE036)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. See Subject Item GP007 for further baghouse operating requirements.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 077 Line 5 Board Dryer**Associated Items:** GP 001 HAP Usage Limits

GP 005 Ovens/Dryers - MN Rule Requirements

GP 012 Combustion HAP emissions (used for summary reporting only)

SV 066 #5 Board Dryer

What to do	Why to do it
EMISSION LIMITS (see also GP005)	hdr
Total Particulate Matter: less than or equal to 1.12 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Particulate Matter < 10 micron: less than or equal to 1.12 lbs/hour	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
TESTING REQUIREMENTS	hdr
Performance Test: due 90 days after Permit Issuance to measure PM and PM10 emissions	Title I Condition: Testing for limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Performance Test Notifications and Submittals; 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 day before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 day 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. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 078 Perlite Expander 5**Associated Items:** CE 039 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F

GP 003 Perlite Expanders - MN Rule Requirements

GP 012 Combustion HAP emissions (used for summary reporting only)

SV 067 Perlite Expander #5

What to do	Why to do it
EMISSION LIMITS (see also GP003)	hdr
Total Particulate Matter: less than or equal to 1.93 lbs/hour . Potential emissions based on design capacity, fuel combustion, and control equipment operation are approximately 1.0 lb/hr.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Particulate Matter < 10 micron: less than or equal to 1.93 lbs/hour . Potential emissions based on design capacity, fuel combustion, and control equipment operation are approximately 1.0 lb/hr.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
CONTROL REQUIREMENTS (CE039)	hdr
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation.	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
See Subject Item GP007 for further baghouse operating requirements.	
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: Limit assumed in analysis to net out of PSD review, Permit No. 01700006-008, 2/21/97

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 101 Mill C Emergency Generator**Associated Items:** SV 086 Mill C Emergency Generator

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Fuel type: Natural gas only	Minn. R. 7005.0100, subp. 35a
Hours of Operation: The Permittee shall maintain documentation on site that the unit is an emergency diesel generator by design that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to 500 hours per year.	Minn. R. 7007.0800, subp. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

Subject Item: EU 105 Miscellaneous combustion sources**Associated Items:** GP 012 Combustion HAP emissions (used for summary reporting only)

What to do	Why to do it
<p>Miscellaneous Combustion Sources includes the natural gas fired space heaters and/or air makeup units which might otherwise be considered "insignificant activities." Because the annual potential emissions from these units is in excess of 140 tons per year of NOX, they are not considered insignificant activities for the purposes of this permit. The following are tracked as a single unit under this permit:</p> <p>6 Rupp heaters @ 11.34 MMBtu/hr each 1 Rupp heater @ 1.13 MMBtu/hr 2 Hartzell heaters @ 3.15 MMBtu/hr each 3 Hartzell heaters @ 5.25 MMBtu/hr each 3 Hartzell heaters @ 0.83 MMBtu/hr each 2 Hartzell heaters @ 0.98 MMBtu/hr each 5 Dravo heaters @ 0.53 MMBtu/hr each 10 Dravo heaters @ 0.66 MMBtu/hr each 1 Hartzell heater @ 4.07 MMBtu/hr 2 Rupp heaters @ 6.48 MMBtu/hr each 2 Rupp heaters @ 12.93 MMBtu/hr each 2 Donlee boilers @ 1.7 MMBtu/hr each (Constellation Boilers 1 & 2) 2 Rupp heaters @ 8.43 MMBtu/hr each 42 Reznor heaters @ 4.2 MMBtu/hr each</p>	definition
EMISSION LIMITS	hdr
<p>Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . This limit applies individually to each separate unit installed on or after January 31, 1977.</p> <p>The design capacity based potential emissions from each of these natural gas fired sources is 0.0072 lb/million Btu heat input.</p>	Minn. R. 7011.0515, subp. 1
<p>Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input . This limit applies individually to each separate unit installed before January 31, 1977.</p> <p>The design capacity based potential emissions from each of these natural gas fired sources is 0.0072 lb/million Btu heat input.</p>	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies individually to each separate unit.	Minn. R. 7011.0515, subp. 2 (for those units installed on or after January 31, 1977) and Minn. R. 7011.0510, subp. 2 (for those units installed before January 31, 1977)
Fuel type: Natural gas only	Minn. R. 7005.0100, subp. 35a

TABLE B: SUBMITTALS

01/05/04

Facility Name: USG Interiors Inc - Cloquet
Permit Number: 01700006 - 001

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.

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 any application for a permit or permit amendment to:

Permit Technical Advisor
Permit Section
Air Quality 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:

Supervisor
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Computer Dispersion Modeling Protocol	<p>due 1,096 days after Permit Issuance, for PM10 and NOX. This protocol will describe the proposed modeling methodology and input data, in accordance with MPCA modeling guidance for Title V air dispersion modeling analyses.</p> <p>See Appendix B for information on including insignificant activities in dispersion modeling.</p> <p>This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	Total Facility
Computer Dispersion Modeling Results	<p>due 1,462 days after Permit Issuance, for NOX and PM10. 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.</p> <p>This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup of stack venting emissions from EU094 outside.	EU094
Testing Frequency Plan	due 60 days after Performance Test for PM and PM10 emissions from EU046 and EU047. 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.	GP011
Testing Frequency Plan	due 60 days after Performance Test for PM and PM10 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.	EU077
Testing Frequency Plan	due 60 days after Performance Test for PM 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
Testing Frequency Plan	due 60 days after Performance Test for PM/PM10 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.	GP004

TABLE B: RECURRENT SUBMITTALS

01/05/04

Facility Name: USG Interiors Inc - Cloquet

Permit Number: 01700006 - 001

What to send	When to send	Portion of Facility Affected
Semiannual Deviations 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 – Insignificant Activities**Facility Name:** USG Interiors Inc - Cloquet**Permit Number:** 01700006-001**Insignificant Activities and Applicable Requirements**

Minn. R. 7007.1300 subpart	Rule Description of the Activity	Applicable Requirement
3(D)	Processing operations:	
	2. Equipment venting particulate matter (PM) or particulate matter less than 10 microns (PM-10) inside a building, provided that emissions from the equipment are: a). filtered through an air cleaning system; and b). vented inside of the building 100% of the time. <ul style="list-style-type: none">• Cull recycle system, vented inside	Minn. R. 7011.0710/0715
3(H)	Miscellaneous:	
	4. brazing, soldering or welding equipment; <ul style="list-style-type: none">• 4 electric welders• 2 gas welders	Minn. R. 7011.0510/.0515 + Minn. R. 7011.0610 + Minn. R. 7011.0710/0715
	5. blueprint copiers and photographic processes; <ul style="list-style-type: none">• 1 Xerox copier	Minn. R. 7011.0105/0110
3(I)	Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than: 1. 4,000 lbs/year of carbon monoxide; and 2. 2,000 lbs/year each of nitrogen oxide, sulfur dioxide, particulate matter, particulate matter less than ten microns, volatile organic compounds (including hazardous air pollutant-containing VOC), and ozone. <ul style="list-style-type: none">• Hydrapulper emergency generator• Tanks B-1, B-2• Tanks B-3, B-4, B-5, B-10, B-11	Minn. R. 7011.2300 40 CFR 60.116b(a) & (b) Minn. R. 7011.1505, subp. 3
3(J)	Fugitive Emissions from roads and parking lots. <ul style="list-style-type: none">• Facility has unpaved parking lots and haul roads	Minn. R. 7011.0150

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 01700006-001

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 regulations and Minn. R. (40 CFR, Section 70.7(a)(5) and Minn. R. 7007.0850, subp.1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the permit.

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 3296)
USG Corporation 125 South Franklin Street Chicago, IL 60606	USG Interiors, Inc. 35 Arch Street Cloquet, Carlton County, Minnesota
Contact: Steve Povroznik, (218) 878-4029	

1.2. Description Of The Permit Action

USG Interiors manufactures acoustical ceiling tiles at their plant in Cloquet, Minnesota. The facility uses gypsum, starch, mineral wool, perlite, clay, recycled newspaper, and other components to form a slurry out of which the ceiling tiles are formed. A "mat" is made of the slurry, which is then dried, cut and coated to make a variety of ceiling tiles. The primary sources of emissions at the facility are particulate emissions from drying and cutting the board material (controlled by baghouses) and from spray application of coating materials (controlled by panel filters). Other emission sources are fuel combustion (natural gas) and some volatile organic compounds (VOC) from coatings used.

The facility is an existing major source under Federal New Source Review regulations. The facility is not a major source of hazardous air pollutant (HAP) emissions, due to federally enforceable limit in the permit.

1.3 Description of any changes allowed with this permit issuance

The Permittee is authorized to duct the emissions from the IBM spray booth to exhaust outside. The unit currently exhausts inside the building.

1.4 Description of all amendments issued since the issuance of the last total facility permit and to be included in the Part 70 Permit.

Permit Number/Issuance Date or Application Date (if no permit)	Action Authorized (if permit issued) or Requested (if no permit issued)
404B-86-I/O-1, December 1, 1986	Relocation and modification of the perlite railcar unloading systems, replacement of the baghouses on existing perlite expanders, installation of 3 rd perlite expander.
404B-89-I/O-1, April 11, 1989, amended July 12, 1989	Installation of Constellation Line (raw material storage bins, product conveying system, end saws, board dryer, primer

Permit Number/Issuance Date or Application Date (if no permit)	Action Authorized (if permit issued) or Requested (if no permit issued)
	and paint booths, paint drying oven).
404B-91-I/O-2, January 30, 1991	Installation of bulk clay unloading and transferring equipment
404B-92-I/O-3, September 4, 1992	Installation of backcoater and backcoat dryer on the Constellation Line
February 22, 1994 (Notification submitted, no permit issued)	Installation of roll-on paint application and drying oven.
January 20, 1995, amended March 1 1995 (application for minor permit amendment, no permit issued)	Installation of new railcar unloading system and new perlite expander, and replacement of baghouses on existing perlite expanders.
June 20, 1995 (application for minor permit amendment, and accumulated insignificant activities; no permit issued)	Installation of paint drying oven
01700006-008, February 21, 1997	Installation of Board Line 5

1.5. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary:

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO Tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	854.5	786.6	2.2	375.2	302.7	71.6	9.5	24.0
Total Facility Actual Emissions (2001)	490.4	292.5	0.55	91.81	77.12	12.57	HAPs not reported in emission inventory	

Table 2. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD	PM, PM ₁₀ , NO _x , CO		SO ₂ , VOC
Part 70 Permit Program	PM ₁₀ , NO _x , CO	HAPs	SO ₂ , VOC

2. Regulatory and/or Statutory Basis

New Source Review

The facility is an existing major source under New Source Review regulations. No changes subject to New Source Review 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.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility has accepted limits on HAP usage such that it is a non-major source under 40 CFR 63. Thus, no NESHAPs apply.

Minnesota State Rules

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

- Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment
- 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. 7011.0710 Standards of Performance for Pre-1969 Industrial Process Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

Table 3 Regulatory Overview of Facility

EU, GP, or SV	Applicable Regulations	Comments:
GP001	Title I limit to avoid NESHAPs	Limit set on HAPs emissions from painting operations, to avoid major source classification under 40 CFR § 63.
GP002 GP004 GP006	Minn. R. 7011.0710 – 7011.0715	GP002 = Material Handling Equipment GP004 = Coating Application Booths GP006 = Cutting/Sawing/Board Finishing Operations
GP003 GP005	Minn. R. 7011.0610	GP003 = Perlite Expanders GP005 = Board Dryers and Paint Drying Ovens
EU033, EU099, EU100, EU042, EU043, EU044, EU046, EU047	Title I limit to avoid NSR	Emission rates used in netting analysis for Permit no. 404B-89-I/O-1, to net out of NSR. The limits are being set in this permit as federally enforceable Title I limits.
EU069, EU077, EU078	Title I limit to avoid NSR	Emission rates used in netting analysis for Permit no. 01700006-008, to net out of NSR. The limits are being set in this permit as federally enforceable Title I limits.
EU101	Minn. R. 7011.2300	
EU105	Minn. R. 7011.0510 – 7011.0515	EU105 = Miscellaneous Combustion Sources, comprised of several units described in the permit as insignificant space heaters, but which when added together potentially emit over 140 tpy of NO _x

3. Technical Information

3.1 Calculations of Potential to Emit

Combustion Sources

Natural gas is the only fuel combusted at the facility. Potential combustion emissions from boilers, dryers, and ovens were calculated using the equipment capacity and AP-42 emission factors for natural gas combustion in boilers.

Sample calculation, combustion emissions from EU077:

Capacity = 180 million BTU/hour heat input (2 burners @ 90 million BTU/hour each)

NO_x Emission Factor: 100 lb/million cubic feet

Heat Content of Natural Gas = 1050 million BTU/million cubic feet

$$180 \frac{\text{mmBtu}}{\text{hour}} \times \frac{1 \text{ mmcf}}{1050 \text{ mmBtu}} \times 100 \frac{\text{lb}}{\text{mmcf}} = 17.14 \frac{\text{lb}}{\text{hour}}$$
$$17.14 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hours}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 75.07 \frac{\text{ton}}{\text{year}}$$

Coating Operations

Potential emissions from coating operations are calculated by mass balance using the equipment capacity, transfer efficiency, VOC and solids content of the coatings, and control efficiency where appropriate.

Sample Calculation, potential emissions from EU015:

Application capacity = 180 gallons/hour

Max VOC content = 0.00269 lb/gallon

Max solids content = 7.45 lb/gallon

Transfer efficiency = 80%

Capture efficiency of collection hood = 80%

Control efficiency of panel filter = 92%

$$\text{VOC: } 180 \frac{\text{gallon}}{\text{hour}} \times 0.00269 \frac{\text{lb}}{\text{gallon}} = 0.48 \frac{\text{lb}}{\text{hour}}$$

$$0.48 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hours}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 2.12 \frac{\text{ton}}{\text{year}}$$

$$\text{PM: } 180 \frac{\text{gallon}}{\text{hour}} \times 7.45 \frac{\text{lb}}{\text{gallon}} \times (1 - 80\%) \times (1 - (80\% \times 92\%)) = 70.80 \frac{\text{lb}}{\text{hour}}$$

$$70.80 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hours}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 310.13 \frac{\text{ton}}{\text{year}}$$

Board Dryers

Board dryers are used to dry the “slurry mat” into a continuous dry board. The AP-42 section for gypsum manufacturing shows no emissions in addition to fuel combustion for gypsum wall board drying. This makes sense, because gypsum wall board has a paper coating on it. The gypsum ceiling tile, however, has no such protective coating, so intuitively, it seems that there would be some dust given off as the board is dried. The annual emission inventory uses emission factors (PM and PM₁₀) for particleboard drying, from the FIRE database, so the same factors are used to calculate PTE.

Sample PM Calculation, board drying for Line 3 dryer (example excludes combustion emissions, which are calculated as described previously):

Drying capacity = 50 ton/hour
PM emission factor = 0.6 lb/ton

$$\begin{aligned} 50 \frac{\text{ton}}{\text{hour}} \times 0.6 \frac{\text{lb}}{\text{ton}} &= 30 \frac{\text{lb}}{\text{hour}} \\ 30 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hour}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} &= 130.4 \frac{\text{ton}}{\text{year}} \end{aligned}$$

Perlite Expanders

In the perlite expanders, heat is applied to the perlite to expand it. Emission factors were obtained from Section 11.30 of AP-42, Perlite Manufacturing. Emission factors provided were for baghouse controlled operations, which is what USG has. To obtain uncontrolled emissions, the controlled factor was divided by 1% (assuming a 99% efficiency for the baghouses).

Sample PM Calculation, perlite expansion in EU006 (example excludes combustion emissions, which are calculated as described previously):

Expansion Capacity = 3 ton/hour
Uncontrolled PM emission factor = 29 lb/ton (controlled factor ÷ 1%)
Control efficiency = 99%

$$\begin{aligned} 3 \frac{\text{ton}}{\text{hour}} \times 29 \frac{\text{lb}}{\text{ton}} \times (1 - 99\%) &= 0.87 \frac{\text{lb}}{\text{hour}} \\ 0.87 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hour}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} &= 3.81 \frac{\text{ton}}{\text{year}} \end{aligned}$$

Board Cutting/Sawing/Grinding/Kerfing/Finishing

This category includes all operations that involve cutting dried board into the sizes and shapes necessary for the various ceiling tile products. The emission factors are from AP-42 Section 11.16, Gypsum Manufacturing. The specific factors are for baghouse controlled end saws. Uncontrolled factors were calculated by dividing the controlled factor by 1%.

Sample PM Calculation, finishing operation EU013:

Finishing Capacity = 15000 ft²/hour
Uncontrolled PM Emission Factor = 0.00075 lb/ft² (controlled factor ÷ 1%)

Control Efficiency = 99%

$$15000 \frac{\text{square feet}}{\text{hour}} \times 0.00075 \frac{\text{lb}}{\text{square foot}} \times (1 - 99\%) = 0.113 \frac{\text{lb}}{\text{hour}}$$
$$0.113 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hour}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.49 \frac{\text{ton}}{\text{year}}$$

Dust Transfer Processes

The facility has several baghouses that operate as process equipment to transfer dust collected in other baghouses. Emissions from these operations were estimated by examining from which other control devices dust was transferred and the maximum quantity of dust that could be captured by that baghouse, depending on the activity it controls, and assuming a 99% efficiency.

Sample Calculation, EU014 (relay baghouse):

Transfers dust collected by CE031

Maximum Quantity of PM Collected by baghouse CE031 = 74.25 lb/hour (99% of maximum emissions generated by Line 5 trimmer)

Collection Efficiency of EU014 = 99%

$$74.25 \frac{\text{lb}}{\text{hour}} \times (1 - 99\%) = 0.74 \frac{\text{lb}}{\text{hour}}$$
$$0.74 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hour}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 3.25 \frac{\text{ton}}{\text{year}}$$

Material Storage Silos

The facility has a number of material storage silos storing a variety of products (clay, starch, gypsum). Each is controlled by a fabric filter. Emissions occur primarily when material is being added to the storage silo. Emission factors specific to these material are not readily available. An obvious choice might be to use an emission factor for sand and gravel handling. However, it was felt that a more conservative emission factor might be that for flour handling. Since flour is so fine of a material, such an emission factor would probably overestimate emissions for handling the materials at USG (clay is wet; starch and gypsum might actually be comparable to flour).

Sample PM Calculation, starch silo (EU037):

Material Handling Capacity = 6 ton/hr (estimated)

Flour Handling Emission Factor = 0.05 lb/ton

Control Efficiency = 99%

$$6 \frac{\text{ton}}{\text{hour}} \times 0.05 \frac{\text{lb}}{\text{ton}} \times (1 - 99\%) = 0.003 \frac{\text{lb}}{\text{hour}}$$

$$0.003 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hour}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.013 \frac{\text{ton}}{\text{year}}$$

Perlite Storage Silos

The facility has a number of perlite storage silos. Each is controlled by a fabric filter. Emissions occur primarily when material is being added to the storage silo. Emission factors specific to perlite are not readily available, so emission factors for sand and gravel handling were used (AP-42, Table 11.19.2-2).

Sample PM Calculation, perlite storage silo (EU067):

Material Handling Capacity = 16.2 ton/hr (estimated)
 Sand & Gravel Handling Emission Factor (PM) = 0.0029 lb/ton
 Control Efficiency = 99%

$$16.2 \frac{\text{ton}}{\text{hour}} \times 0.0029 \frac{\text{lb}}{\text{ton}} \times (1 - 99\%) = 0.00047 \frac{\text{lb}}{\text{hour}}$$

$$0.00047 \frac{\text{lb}}{\text{hour}} \times 8760 \frac{\text{hour}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} = 0.002 \frac{\text{ton}}{\text{year}}$$

3.2 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 this permit.

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

Table 4 Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP001	Formaldehyde: 9.2 tpy (to avoid 40 CFR 63)	Monthly determination of formaldehyde emissions Monthly 12-month rolling sum	All single HAPs are limited to 9.5 tpy. Because formaldehyde is also potentially emitted from natural gas combustion at up to 0.27 tpy (at maximum combustion capacity), formaldehyde emissions from coating operations can't exceed 9.2 tpy USG makes a case that daily recordkeeping of the formaldehyde emissions from the melamine resin usage is not possible. Therefore, emissions of formaldehyde from melamine resin may be done on a monthly basis (all other formaldehyde used in coating processes must be documented daily), and a 12-month rolling sum of total formaldehyde used for compliance demonstration.
	Hexane: 2.9 tpy (to avoid 40 CFR 63)	Daily recordkeeping of hexane content & quantity of coating Daily calculation of 365 day rolling sum	All single HAPs are limited to 9.5 tpy. Because hexane is also potentially emitted from natural gas combustion at up to 6.5 tpy (at maximum combustion capacity), hexane emissions from coating operations can't exceed 2.9 tpy
	Single HAPs: 9.5 tpy (to avoid 40 CFR 63 applicability)	Daily recordkeeping of HAP content & quantity of coating Daily calculation of 365 day rolling sum	All single HAPs other than formaldehyde and hexane may be emitted from coating operations at a rate of 9.5 tpy. The primary HAP from the coating operations is vinyl acetate. A 365 day rolling sum is justified because potential vinyl acetate emissions exceed 9.5 tpy, if the plant were to operate all booths using the highest-vinyl acetate containing coating at full capacity. The plant operates at close to maximum capacity, and therefore should closely monitor the HAP emissions on a 365-day rolling sum basis.
	Total HAPs: 17.1 tpy (to avoid 40 CFR 63)	Monthly calculation of 12-month rolling sum	Total HAPs are limited to 17.1 tpy for GP001, which limits total HAPs for the facility to 24 tpy. Because HAPs are also potentially emitted from natural gas combustion at up to 6.9 tpy (at maximum combustion capacity), total HAP emissions from coating operations can't exceed 17.1 tpy (24 – 6.9). A 12-month rolling sum is justified because daily formaldehyde emissions are not available.

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP002 (material handling and storage)	PM and Opacity: Minn. R. 7011.0710 – 7011.0715	Daily visible emissions or pressure drop monitoring Proper O&M for baghouses	All units in this group are controlled by baghouses, (except EU014, EU028, and EU090, which are baghouses functioning as process equipment). Baghouses can typically easily achieve the limits of the Industrial Process Equipment Rule (IPER). For all units in this group except EU090, the potential emissions based on equipment capacity are less than the calculated IPER limit based on capacity:
			Unit PTE (lb/hr) IPER limit (lb/hr)
			EU014 0.74 19.64
			EU028 7.57 19.64
			EU036 0.002 8.48
			EU037 0.003 8.86
			EU038 0.003 6.32
			EU039 0.062 3.55
			EU040 0.003 3.15
			EU041 0.002 3.15
			EU060 0.00005 11.40
			EU064 0.002 8.48
			EU067 0.00005 10.25
			EU068 0.00005 10.25
			EU084 0.002 3.15
			EU085 0.003 3.15
			EU086 0.003 3.15
EU090	PM and Opacity: Minn. R. 7011.0710 – 7011.0715	Performance Test	Because EU090 is a baghouse operating as a transfer operation for already-collected dust, it isn't clear what the exact "capacity" is. Potential emissions calculated the same way as EU014 and EU028 (similar operations), yield potential hourly PM emissions in excess of the IPER limit. Therefore, a test is being required to demonstrate that the IPER is being met.
EU042, EU043, EU044	PM and PM ₁₀ (Title I)	Daily visible emissions or pressure drop monitoring Proper O & M of baghouse	These limits were set in a previous permit (404B-89-I/O-1) and were used to "net-out" of PSD review. The potential PM emissions based on equipment capacity (approximately 0.003 lb/hr) are much less than the limit (approximately 0.051 lb/hr), therefore testing is not required.

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion																		
GP003 (perlite expanders)	PM and Opacity: Minn. R. 7011.0710 – 7011.0715	Daily pressure drop monitoring Proper O & M of baghouse	<p>All units in this group are controlled by baghouses, which can typically easily achieve the limits of the Industrial Process Equipment Rule (IPER). For all units in this group, the potential emissions based on equipment capacity are less than the calculated IPER limit based on capacity:</p> <table><tr><td>Unit</td><td>PTE (lb/hr)</td><td>IPER limit (lb/hr)</td></tr><tr><td>EU006</td><td>0.87</td><td>7.03</td></tr><tr><td>EU008</td><td>0.87</td><td>7.03</td></tr><tr><td>EU010</td><td>0.87</td><td>7.03</td></tr><tr><td>EU061</td><td>1.05</td><td>7.03</td></tr><tr><td>EU078</td><td>1.04</td><td>7.94</td></tr></table>	Unit	PTE (lb/hr)	IPER limit (lb/hr)	EU006	0.87	7.03	EU008	0.87	7.03	EU010	0.87	7.03	EU061	1.05	7.03	EU078	1.04	7.94
Unit	PTE (lb/hr)	IPER limit (lb/hr)																			
EU006	0.87	7.03																			
EU008	0.87	7.03																			
EU010	0.87	7.03																			
EU061	1.05	7.03																			
EU078	1.04	7.94																			
EU078	PM and PM ₁₀ (Title 1)	Performance Test	This limit was used in a previous permit (01700006-008) analysis to “net-out” of PSD review. The potential PM emissions based on equipment capacity are roughly 53% of the limit, therefore testing is not being required at this time.																		
GP004 (spray booths)	PM and Opacity: Minn. R. 7011.0710 – 7011.0715	Performance Tests (see Section 3.4 of this document, Performance Tests for Spray Booths)	<p>For each unit in this group except EU032, the potential PM emissions based on spray application capacity, control technology, and worst-case solids content of coating are greater than the IPER limit. There are 14 spray booths in this group, but it is not necessarily required to test all of them, depending on the tests of the “worst case” test results.</p> <p>The following schedule is set in the permit:</p>																		
		Performance test for EU092; requirement to test EU093 contingent on EU092 test results.	Units EU092 and EU093 are similar units, with EU092 having a higher capacity (2x). EU092 is to be tested within 180 days of permit issuance. EU093 is to be tested within 365 days of permit issuance, unless an alternative schedule is approved based on the test results for EU092 (Since EU093 has half the capacity but is subject to the same air-flow based limit as EU092, if EU092’s limit is met, it can be proposed that EU093, having half the capacity, would also meet the same limit).																		

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP004, continued		Performance test for EU071; requirement to test EU083 contingent on EU071 test results.	Units EU071 and EU083 are similar units, with EU083 having a higher IPER limit because of a higher exhaust airflow. EU083 is to be tested within 30 days of permit issuance, as a means of determining whether NSR applied at the time of installation. EU071 is to be tested within 180 days of permit issuance, unless the results of the EU083 test indicate that EU071's compliance is assured.
		Performance test for EU015; requirement to test EU016, EU024, and EU029 contingent on EU015 test results.	Units EU015, EU016, EU024, EU029, EU046, and EU047 are similar units. EU046 and EU047 are also subject to additional, lower Title I limits, testing for which is addressed elsewhere in the permit and later in this document. EU015 is to be tested within 180 days of permit issuance, because it has the lowest IPER limit. EU016, EU024, and EU029 are to be tested within 365 days of permit issuance, unless an alternative schedule is approved based on the test results for EU015 (Since EU015 is subject to the lowest limit, if its limit is met, it can be proposed that the other 3 similar units, having the same capacity, would also meet the lower limit, and thus their own higher IPER limits).
		Performance tests for EU073 and EU080	EU073 and EU080 are similar units, but with different capacities and different limits. Both of these units shall be tested within 30 days of permit issuance to determine whether NSR applied at the time of installation, and to show compliance with their respective IPER limits. EU032 sprays strictly adhesive. Potential particulate emissions are a very small percentage of the IPER limit, so no testing is required. EU094 currently exhausts within the building, although plans are to vent it outside. When that happens, the Permittee is to notify the MPCA within 15 days after that occurs, and performance testing of EU094 is then due 90 days after that.
GP011 (EU046 & EU047, paint booths)	PM/PM ₁₀ : 2.7 lb/hr each (Title I)	Performance Tests (see Section 3.4 of this document, Performance Tests for Spray Booths)	These limits were set in a previous permit (404B-89-I/O-1) and were used to "net-out" of PSD review. The potential PM emissions based on equipment capacity are greater than the limits, therefore testing should be done to verify

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion															
GP011, continued			compliance.															
	Primer Usage: 1200 gallons/day combined (Title I) Finish Paint Usage: 4800 gallons/day combined (Title I)	Daily recordkeeping	These limits were set in a previous permit (404B-89-I/O-1) and were used to “net-out” of PSD review. The potential material usage based on equipment capacity is greater than the limit, therefore daily recordkeeping should be maintained.															
EU077	PM and PM ₁₀ (Title I)	Performance Test	This limit was used in a previous permit (01700006-008) analysis to “net-out” of PSD review. The potential PM emissions based on equipment capacity (37.3 lb/hr) are much higher than the emissions used in the netting analysis (approximately 1.12 lb/hr), therefore testing should be done to verify compliance.															
GP005 (ovens and dryers)	PM and Opacity (Minn. R. 7011.0610)	None. Fuel limited to natural gas	<p>Since only natural gas is burned in these units, combustion emissions will not cause a violation of Minn. R. 7011.0610 (which are the same limits as Minn. R. 7011.0710-7011.0715).</p> <p>The board ovens/dryers (EU002, EU030, EU045, and EU077) have the potential of emitting particulate matter in addition to the products of combustion (see Section 3.1 Calculation of Potential to Emit). Since the potential emissions calculated seem like an overestimation, testing to show compliance with 7011.0610 limits is not required:</p> <table><tr><td>Unit</td><td>PTE (lb/hr)</td><td>limit (lb/hr)</td></tr><tr><td>EU002</td><td>30.72</td><td>32.37</td></tr><tr><td>EU030</td><td>9.04</td><td>19.24</td></tr><tr><td>EU045</td><td>9.26</td><td>26.14</td></tr><tr><td>EU077</td><td>37.3</td><td>45.44</td></tr></table>	Unit	PTE (lb/hr)	limit (lb/hr)	EU002	30.72	32.37	EU030	9.04	19.24	EU045	9.26	26.14	EU077	37.3	45.44
Unit	PTE (lb/hr)	limit (lb/hr)																
EU002	30.72	32.37																
EU030	9.04	19.24																
EU045	9.26	26.14																
EU077	37.3	45.44																

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion																																				
GP006 (cutting, sawing, finishing operations)	PM and Opacity (Minn. R. 7011.0710 – 7011.0715)	Daily visible emissions or pressure drop monitoring Proper O & M of baghouses	All units in this group are controlled by baghouses, which can typically easily achieve the limits of the Industrial Process Equipment Rule (IPER). For all units in this group, the potential emissions based on equipment capacity are less than the calculated IPER limit based on capacity: <table><tr><td>Unit</td><td>PTE (lb/hr)</td><td>IPER limit (lb/hr)</td></tr><tr><td>EU013</td><td>0.11</td><td>9.94</td></tr><tr><td>EU019</td><td>0.56</td><td>17.01</td></tr><tr><td>EU022</td><td>0.56</td><td>14.98</td></tr><tr><td>EU023</td><td>0.93</td><td>19.64</td></tr><tr><td>EU027</td><td>0.22</td><td>19.64</td></tr><tr><td>EU058</td><td>0.02</td><td>8.12</td></tr><tr><td>EU087</td><td>0.75</td><td>16.00</td></tr><tr><td>EU088</td><td>0.75</td><td>16.00</td></tr><tr><td>EU089</td><td>0.75</td><td>16.00</td></tr><tr><td>EU097</td><td>0.56</td><td>15.08</td></tr><tr><td>EU098</td><td>0.56</td><td>15.08</td></tr></table>	Unit	PTE (lb/hr)	IPER limit (lb/hr)	EU013	0.11	9.94	EU019	0.56	17.01	EU022	0.56	14.98	EU023	0.93	19.64	EU027	0.22	19.64	EU058	0.02	8.12	EU087	0.75	16.00	EU088	0.75	16.00	EU089	0.75	16.00	EU097	0.56	15.08	EU098	0.56	15.08
Unit	PTE (lb/hr)	IPER limit (lb/hr)																																					
EU013	0.11	9.94																																					
EU019	0.56	17.01																																					
EU022	0.56	14.98																																					
EU023	0.93	19.64																																					
EU027	0.22	19.64																																					
EU058	0.02	8.12																																					
EU087	0.75	16.00																																					
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EU089	0.75	16.00																																					
EU097	0.56	15.08																																					
EU098	0.56	15.08																																					
SV027	PM and PM ₁₀ (Title I)	Daily visible emissions or pressure drop monitoring Proper O & M of baghouses	This limit was set in a previous permit (404B-89-I/O-1) and was used to “net-out” of PSD review. The potential PM emissions of the three units exhausting through a baghouse to this stack (EU033, EU099, EU100), based on equipment capacity, are 0.83 lb/hr, compared to the Title I limit of 5.12 lb/hr. Additional testing is not required to verify compliance.																																				
EU069	PM and PM ₁₀ (Title I)	Daily visible emissions or pressure drop monitoring Proper O & M of baghouse	This limit was used in a previous permit (01700006-008) analysis to “net-out” of PSD review. The potential PM emissions based on equipment capacity and AP-42 emission factors (0.04 lb/hr) are much lower than the emissions assumed in the netting analysis (approximately 0.5 lb/hr), therefore testing is not required.																																				
EU101	Opacity and SO ₂ (Minn. R. 7011.2300)	None	The equipment is only capable of combusting natural gas, so it is unlikely that the emission limits would be violated.																																				
EU105	PM and Opacity (Minn. R. 7011.0510-7011.0515)	None	The equipment is only capable of combusting natural gas, so it is unlikely that the emission limits would be violated.																																				

3.3 Insignificant Activities

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

The Permittee listed a number of space heaters as insignificant activities. While space heaters, as defined in Minn. R. 7007.1300 subp. 3, are typically insignificant, the size and quantity of these particular heaters cannot be considered insignificant. Combined NO_x emissions from the units, for example, are over 140 tpy. For that reason, the space heaters which were listed as insignificant activities, along with the 2 Constellation boilers, are lumped together as “miscellaneous combustion sources.” The emissions from these units will now be counted in the emission inventory.

The Permittee also listed a number of storage tanks in the permit application. All of these tanks are insignificant activities either by the size of the tank, or the low actual or potential emissions due to the VOC content of the materials stored: A copy of the list of tanks submitted is included in Attachment 2 to this document. Tank B-1 is insignificant because actual emissions are zero – this tank has been out of service since at least 1996, according to the permit application. Tank B-2 contains vinyl acetate-containing latex. All of the vinyl acetate/VOC is already assumed emitted at the point of use (spray booths), so no emissions are allotted to this tank. Tanks B-1 and B-2 are subject to the requirements of NSPS Subpart Kb requiring recordkeeping of the tank size. Tanks B-3 and B-4 contain melamine resin, which contains formaldehyde. All of the formaldehyde/VOC is already assumed emitted at the point of use (board drying), so no additional emissions are allotted to these tanks. Tank B-5 contains a non-HAP containing alcohol mixture. Because the tank is small (6000 gallons), VOC emissions are negligible. Tank B-6 is a gasoline storage tank with a capacity of 5600 gallons, and is insignificant under Minn. R. 7007.1300, subp. 2(E)(4), and therefore not required to be listed in the permit. Tank B-7 is a diesel fuel storage tank with a capacity of 5600 gallons, and is insignificant under Minn. R. 7007.1300, subp. 2(E)(3), and therefore not required to be listed in the permit. Tanks B-8 and B-9 do not contain HAPs or VOCs, and therefore were not included in the permit. Tanks B-11 and B-12 are each 3000 gallons and contain mineral spirits. Because of the small size and small quantity used, the VOC emissions from these tanks are negligible. Tanks B-3, B-4, B-5, B-10, and B-11 are smaller than those regulated by NSPS Subpart Kb, and so are subject to Minn. R. 7011.1505

3.4 Performance Tests for Spray Booths

Consistent with the decision made by AQ Leads on September 13, 2000, for spray booths subject only to the Industrial Process Equipment Rule, and for which testing of uncollected emissions is not feasible, compliance with the rule should be determined by comparing to the appropriate limit only those emissions exhausted through the stack. That is, those emissions not collected by the hood (typically assumed and certified by the Permittee to be 80% efficient), are not included in the emissions which are compared to the limit. Note that the uncollected 20% of emissions are still counted for the annual emission inventory, and are still relevant to NSR limits and to Title I limits set to avoid NSR. See the September 13, 2000, Leads' Minutes, included as Attachment 3 to this document. The issue begins on page 2 of 5.

For those spray booths subject to Title I emission limits (EU046 and EU047), the above does not hold true. The Leads specified on September 13, 2000, that “This recommendation and decision is intended to be specific to determining compliance with the Industrial Process Equipment Rule and does not apply to NSR applicability.” Therefore, the stack test results for EU046 and EU047 cannot be compared directly with the respective limits for EU046 and EU047. These limits were used to net out of PSD review at the time of installation of EU046 and EU047, and so must reflect the total emissions from the units, including those not captured by the control equipment hood. The Permittee has two options for demonstrating compliance with the Title I limits for EU046 and EU047:

Option 1: Directly test the uncollected emissions at the same time as the stack emissions, by constructing a temporary total enclosure around the entire booth.

Option 2: Test only the emissions from the stack. Assuming a hood capture efficiency of 80% and a panel filter collection efficiency of 92%, for an overall control efficiency of 73.6%, back-calculate the total emissions using the following equation:

$$TE = 4.125 \times S$$

Where:

TE = total PM/PM₁₀ emissions from the painting operation, in lb/hr

S = the measured PM/PM₁₀ from the stack, in lb/hr

The equation is derived as follows:

$$TE = S + U$$

$$S = (1-92\%) \times C = 0.08 \times C$$

$$U = 20\% \times G$$

$$C = 80\% \text{ of } G = 0.8 \times G$$

$$S = 0.08 \times (0.8 \times G)$$

$$G = S \div (0.08 \times 0.8) = S \div 0.064 = 15.625 \times S$$

$$U = 20\% \times 15.625 \times S = 3.125 \times S$$

$$TE = S + (3.125 \times S) = 4.125 \times S$$

Where:

TE = total PM/PM₁₀ emissions from the painting operation, in lb/hr

S = the measured PM/PM₁₀ from the stack, in lb/hr (assumed to be 8% of what was captured by the hood)

G = the quantity of PM/PM₁₀ generated by the painting operation, in lb/hr

C = the quantity of PM/PM₁₀ captured by the hood, assumed to be not more than 80% (as certified by permittee) of the quantity generated (G)

U = the quantity of PM/PM₁₀ not captured by the hood, assumed to be 20% of the quantity generated

3.5 Permit Organization

Deviation from normal format: GP010 does not appear in the permit as a group of units with common requirements. It is used only for purposes of reporting HAP emissions from combustion of natural gas. It is allowable to report HAP emissions as a group because the facility is not a major source of HAPs.

4. Conclusion

Based on the information provided by USG Interiors, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 01700006-001 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)

Bob Beresford (enforcement)

Sarah Kilgriff (stack testing)

Paula Connell (peer reviewer)

Attachments: 1. PTE Summary and Calculation Spreadsheets
2. Facility Description and CD-01 Forms
3. Leads Decision re: Spray Booth limits