

**AIR EMISSION PERMIT NO. 13700073- 001**

**IS ISSUED TO**

**ME GLOBAL, INC.**

200 East Carterette Street  
Duluth, St. Louis County, MN 55808

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

Permit Type	Application Date
Total Facility Operating Permit	06/15/1995
Update to Total Facility Operating Permit	05/01/1998
Administrative Amendment	11/05/2001

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:** State; Syn Min PSD/NSR

**Issue Date:** May 23, 2002

**Expiration:** Permit does not expire  
All Title I Conditions do not expire.

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Ann M. Foss  
Majors Facility Section Manager  
Majors and Remediation Division

for Karen A. Studders  
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. Certain requirements which have been determined not to apply are listed in Table A of this permit.

Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

**FACILITY DESCRIPTION:**

ME Global is a steel foundry, producing steel parts primarily for the iron mining industry. Scrap steel and alloys are combined and melted in two electric arc furnaces. Castings are made by pouring the molten steel into sand molds produced by vacuum molding, which uses no binders. Primary emission sources at the facility are the electric arc furnaces, and the sand handling operations. Emissions from both sources are controlled with fabric filter baghouses.

The facility is permitted as a non-major source under Part 70 and New Source Review regulations.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc  
 Permit Number: 13700073 - 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**

<b>What to do</b>	<b>Why to do it</b>
The Permittee cannot make any change at the source that would make the source subject to the requirement for a Part 70 permit, until the Part 70 permit obtained. This includes changes that might otherwise qualify as insignificant modifications and minor or moderate amendments.	Minn. R. 7007.1150, item E
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)
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)
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
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	Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2
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.  If all necessary monitoring equipment does not currently exist or is not currently operational, the Permittee must install or make repairs within 90 days of issuance of this permit.	Minn. R. 7007.0800, subp. 4(D)
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
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**

05/23/02

Facility Name: ME Global Inc  
Permit Number: 13700073 - 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 discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
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
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)
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)
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
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
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
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)
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**

05/23/02

Facility Name: ME Global Inc  
 Permit Number: 13700073 - 001

**Subject Item:** GP 001 Meltshop

**Associated Items:** CE 013 Fabric Filter - Low Temperature, i.e., T<180 Degrees F  
 EU 024 Electric Arc Furnace North  
 EU 025 Electric Arc Furnace South  
 EU 055 Furnace Charging & Tapping  
 SV 015 Electric Arc Furnaces Dust Collector  
 SV 040 General Ventilation - Melting Area

What to do	Why to do it
<b>EMISSION AND OPERATING LIMITS</b>	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas from SV015 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 electric arc furnace.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity from SV015. This limit applies individually to each electric arc furnace.	Minn. R. 7011.0715, subp. 1(B)
Material Usage: less than or equal to 60000 tons/year using 365-day Rolling Sum , of material charged. This includes scrap, remelted scrap, and any added alloys.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Process Throughput: less than or equal to 11.74 tons/hour using 24-hour Block Average for both furnaces combined. Downtime of 15 minutes or more is not to be counted as operating time.	Minn. R. 7017.2025
<b>RECORDKEEPING REQUIREMENTS</b>	hdr
Daily Recordkeeping - Each day, the Permittee shall calculate and record a. The total quantity of material charged the previous day, and b. The 365-day rolling sum, by summing the 365 previous daily charge quantities.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Daily Recordkeeping - Each day, the Permittee shall calculate and record the tons per hour melting rate for the previous day for each of the electric arc furnaces (EU024 and EU025). Divide the total tons of material melted in each furnace by the number of operating hours. Do not count downtime of 15 minutes or more as operating time.	Minn. R. 7007.0800, subp. 5
<b>CONTROL EQUIPMENT REQUIREMENTS (CE013)</b>	hdr
The Permittee shall operate and maintain the control equipment at any time that the associated process equipment controlled by it is in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Maintain and operate the control equipment and capture system for each of the melting furnaces such that during melting they each achieve an overall control efficiency for Total Particulate Matter: greater than or equal to 89 percent	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Maintain and operate the control equipment and capture system for each of the melting furnaces such that during melting they each achieve an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 89 percent	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Maintain and operate the control equipment and capture system for the charging and tapping operations of each of the furnaces such that they each achieve an overall control efficiency for Total Particulate Matter: greater than or equal to 74 percent	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Maintain and operate the control equipment and capture system for the charging and tapping operations of each of the furnaces such that they each achieve an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 74 percent	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Pressure Drop: greater than or equal to 3.0 inches of water column and less than or equal to 13.0 inches of water column in each of the 10 compartments, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop of each compartment once every 24 hours when in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc

Permit Number: 13700073 - 001

Periodic Inspections: At least once per calendar quarter, or more frequently if 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
Corrective Actions: The Permittee shall follow the O&M Plan for the control equipment and take corrective action as soon as possible (within 24 hours) if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the equipment or any of its components are found during the inspections to need repair. 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

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc

Permit Number: 13700073 - 001

**Subject Item:** GP 002 EU020 and EU042**Associated Items:** EU 020 Wisconsin Core Oven

EU 042 OSI Oven

What to do	Why to do it
Binder Material Usage: less than or equal to 100000 lbs/year using 12-month Rolling Sum	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Monthly Recordkeeping - By the 15th day of each month, the Permittee shall calculate and record a. The total quantity of binder material used during the previous month, and b. The 12-month rolling sum, by summing the 12 previous monthly quantities.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2



# TABLE A: LIMITS AND OTHER REQUIREMENTS

05/23/02

Facility Name: ME Global Inc  
Permit Number: 13700073 - 001

**Subject Item:** GP 003 Heat-Treat of Oil-Quenched Castings

**Associated Items:** CE 010 Direct Flame Afterburner  
CE 016 Direct Flame Afterburner  
CE 017 Direct Flame Afterburner  
CE 018 Direct Flame Afterburner  
EU 016 Tempering Furnace No. 6  
EU 017 Tempering Furnace No. 7  
EU 018 Tempering Furnace No. 8  
EU 019 Tempering Furnace No. 9  
SV 011 Heat Treat Ovens 6-9

What to do	Why to do it
EMISSION AND OPERATING 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 oven listed.	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 furnace listed.	Minn. R. 7011.0610, subp. 1(A)(2)
Volatile Organic Compounds: less than or equal to 1.0 lbs/ton of oil-quenched castings processed.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Fuel: Limited to natural gas or propane only, by design	Minn. Stat. 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
CONTROL REQUIREMENTS (CE010, CE016, CE017, CE018)	hdr
The Permittee shall operate and maintain the thermal oxidizer any time that the associated process equipment controlled by the thermal oxidizer is processing castings that have been oil-quenched, for at least the first 2 hours of the heat-treat cycle.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Maintain and operate the control equipment that they each achieve an overall control efficiency for Volatile Organic Compounds: greater than or equal to 95 percent	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Temperature: greater than or equal to 1290 degrees F absolute minimum at the Combustion Chamber unless a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average temperature recorded during the most recent MPCA approved performance test where compliance for VOC emissions was demonstrated. If the temperature drops below the minimum temperature limit, the VOC used during that time shall be considered uncontrolled until the minimum temperature limit is once again achieved. This shall be reported as a deviation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required.	Minn. R. 7007.0800, subp. 4
The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records the combustion chamber temperature of the thermal oxidizer. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Celsius. The recording device shall also calculate the three-hour rolling average combustion chamber temperature.	Minn. R. 7007.0800, subp. 4 and 5
Daily Monitoring: The Permittee shall check the temperature recording operation at least once each operating day to verify that it is working and recording properly.	Minn. R. 7007.0800, subp. 4 and 5
Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	Minn. R. 7007.0800, subp. 4, 5, and 14
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 4, 5, and 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc

Permit Number: 13700073 - 001

Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5, and 14
TESTING REQUIREMENTS (SV011)	hdr
Performance Test: due before end of each 60 months starting 12/31/2001 to measure VOC emissions while processing castings that have been oil-quenched. Testing may be conducted while one or more ovens are processing oil-quenched castings. The next test is due December 31, 2006, and every 60 months thereafter.  For additional performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility."	Title I Condition: Testing for limit used to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc  
Permit Number: 13700073 - 001

**Subject Item:** GP 004 Uncontrolled Sand Handling

**Associated Items:** EU 038 Kloster Mixer  
EU 039 Redford Carver Blower (east)  
EU 040 Redford Carver Blower (west)  
SV 039 General Ventilation - Casting Area

What to do	Why to do it
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. The limit applies individually to each unit listed.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity This limit applies individually to each unit listed.	Minn. R. 7011.0715, subp. 1(B)

# TABLE A: LIMITS AND OTHER REQUIREMENTS

05/23/02

Facility Name: ME Global Inc  
Permit Number: 13700073 - 001

**Subject Item:** GP 005 Controlled Sand Handling

**Associated Items:** CE 014 Fabric Filter - Low Temperature, i.e., T<180 Degrees F  
EU 026 Sand System, shakeout, reclaim  
EU 033 Kloster Sand Cooler #1  
EU 041 Carver Mixer  
EU 049 Kloster Sand Cooler #2  
SV 016 Sand Handling  
SV 017 Sand Handling

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
CONTROL REQUIREMENTS (CE014)	hdr
The Permittee shall operate and maintain the control equipment at any time that the associated process equipment controlled by it is in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 9 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop once every 24 hours when in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14
Periodic Inspections: At least once per calendar quarter, or more frequently if 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
Corrective Actions: The Permittee shall follow the O&M Plan for the control equipment and take corrective action as soon as possible (within 24 hours) if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the equipment or any of its components are found during the inspections to need repair. 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

# TABLE A: LIMITS AND OTHER REQUIREMENTS

05/23/02

Facility Name: ME Global Inc  
Permit Number: 13700073 - 001

**Subject Item:** GP 006 Swing Grinders

**Associated Items:** CE 001 Fabric Filter - Low Temperature, i.e., T<180 Degrees F  
CE 002 Fabric Filter - Low Temperature, i.e., T<180 Degrees F  
CE 003 Fabric Filter - Low Temperature, i.e., T<180 Degrees F  
EU 002 Swing Frame Grinding No. 1  
EU 003 Swing Frame Grinding No. 3  
EU 027 Swing Grind Station No 5  
EU 043 Swing Frame Grinding No. 2  
EU 044 Swing Frame Grinding No. 4  
SV 001 Swing Grinder #5  
SV 002 Swing Grinders #1 & #2  
SV 003 Swing Grinders #3 & #4

What to do	Why to do it
EMISSION AND OPERATING 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 emission unit listed.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity This limit applies individually to each emission unit listed.	Minn. R. 7011.0715, subp. 1(B)
CONTROL REQUIREMENTS (CE001, CE002, CE003)	hdr
The Permittee shall operate and maintain the control equipment at any time that the associated process equipment controlled by it is in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Maintain and operate the control equipment and capture systems such that they each achieve an overall control efficiency for Total Particulate Matter: greater than or equal to 79 percent	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Maintain and operate the control equipment and capture systems such that they each achieve an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 79 percent	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 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. The Permittee shall record the pressure drop once every 24 hours when in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14
Periodic Inspections: At least once per calendar quarter, or more frequently if 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
Corrective Actions: The Permittee shall follow the O&M Plan for the control equipment and take corrective action as soon as possible (within 24 hours) if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the equipment or any of its components are found during the inspections to need repair. 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
Hood Certification and Evaluation: Each control device hood must conform to the requirements listed in Minn. R. 7011.0070, subp. 1, and the Permittee shall certify this as specified in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of the certification on site, as well as an annual record of fan rotation speed, fan power draw, or face velocity of the hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 4, 5, and 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc  
 Permit Number: 13700073 - 001

**Subject Item:** GP 007 Uncontrolled Ovens

**Associated Items:** EU 011 High Temperature Furnace No. 1  
 EU 012 High Temperature Furnace No. 2  
 EU 013 High Temperature Furnace No. 3  
 EU 014 High Temperature Furnace No. 4  
 EU 015 High Temperature Furnace No. 5  
 EU 021 Draw Furnace No 22  
 EU 022 High Temperature Furnace No. 12  
 EU 023 High Temperature Furnace No. 13  
 EU 028 High Temperature Furnace No. 17  
 EU 029 High Temperature Furnace No. 18  
 EU 030 High Temperature Furnace No. 19  
 EU 031 High Temperature Furnace No. 20  
 EU 032 High Temperature Furnace No. 21  
 EU 042 OSI Oven  
 EU 050 Draw Furnace #23  
 EU 051 High Temp Furnace #10  
 EU 052 High Temp Furnace #11  
 SV 010 Heat Treat Ovens 1-5  
 SV 013 Heat Treat Ovens 22-23  
 SV 014 Heat Treat Ovens 10-13  
 SV 019 Heat Treat Oven 17  
 SV 020 Heat Treat Oven 18  
 SV 021 Heat Treat Oven 19  
 SV 022 Heat Treat Oven 20  
 SV 023 Heat Treat Oven 21  
 SV 034 OSI Core Oven  
 SV 043 Heat Treat Ovens 1-5

What to do	Why to do it
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 of the units listed.	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 of the emission units listed.	Minn. R. 7011.0610, subp. 1(A)(2)
Fuel: Limited to natural gas and propane only, by design	Minn. Stat. 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc  
 Permit Number: 13700073 - 001

**Subject Item:** EU 004 Oil Quench Tank

**Associated Items:** CE 004 Wet Scrubber - Medium Efficiency  
 SV 004 Oil Quench  
 SV 032 General Ventilation - Heat Treat Area  
 SV 033 General Ventilation - Heat Treat Area

What to do	Why to do it
<b>EMISSION AND OPERATING LIMITS</b>	hdr
Volatile Organic Compounds: less than or equal to 0.84 lbs/ton of material quenched	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Process Throughput: less than or equal to 15000 tons/year using 12-month Rolling Sum of castings oil quenched.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Process Throughput: less than or equal to 4589 lbs/hour using 12-hour Block Average. Downtime of 15 minutes or more is not to be counted as operating time.	Minn. R. 7017.2025
<b>RECORDKEEPING REQUIREMENTS</b>	hdr
Monthly Recordkeeping - By the 15th day of each month, the Permittee shall calculate and record a. The total weight of castings oil quenched the previous month, and b. The 12-month rolling sum, by summing the weights of castings oil quenched during the previous 12 month.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Daily Recordkeeping - Each day, calculate the pounds per hour oil quenching rate for each of the previous day's 12 hour shifts. Divide the total pounds of casting oil quenched in an 12-hour shift by the hours of oil-quenching time in the shift. Do not count downtime of 15 minutes or more as operating time.	Minn. R. 7007.0800, subp. 5
<b>CONTROL EQUIPMENT REQUIREMENTS (CE004)</b>	hdr
The Permittee shall operate and maintain the control equipment at any time that the associated process equipment controlled by it is in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 5 inches of water column, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop once every 24 hours when in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14
Periodic Inspections: At least once per calendar quarter, or more frequently if 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
Corrective Actions: The Permittee shall follow the O&M Plan for the control equipment and take corrective action as soon as possible (within 24 hours) if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the equipment or any of its components are found during the inspections to need repair. 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
Hood Certification and Evaluation: The control device hood must conform to the requirements listed in Minn. R. 7011.0070, subp. 1, and the Permittee shall certify this as specified in Minn. R. 7011.0070, subp. 3. The Permittee shall maintain a copy of the certification on site, as well as an annual record of fan rotation speed, fan power draw, or face velocity of the hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 4, 5, and 14
<b>TESTING REQUIREMENTS (SV004)</b>	hdr
Performance Test: due 90 days after Permit Issuance to measure VOC emissions at the outlet of the control device.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp.2
For additional performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility."	

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc

Permit Number: 13700073 - 001

**Subject Item:** EU 009 Blast Cabinet**Associated Items:** CE 009 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 009 Shot blast

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
CONTROL REQUIREMENTS (CE009)	hdr
The Permittee shall operate and maintain the control equipment at any time that the associated process equipment controlled by it is in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 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. The Permittee shall record the pressure drop once every 24 hours when in operation.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subp. 4, 5, and 14
Periodic Inspections: At least once per calendar quarter, or more frequently if 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
Corrective Actions: The Permittee shall follow the O&M Plan for the control equipment and take corrective action as soon as possible (within 24 hours) if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the equipment or any of its components are found during the inspections to need repair. 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



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc

Permit Number: 13700073 - 001

**Subject Item:** EU 020 Wisconsin Core Oven**Associated Items:** CE 011 Direct Flame Afterburner

GP 002 EU020 and EU042

SV 012 Wisconsin Core Oven

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
Fuel: Limited to natural gas and propane only, by design	Minn. Stat. 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
CONTROL REQUIREMENTS (CE011)	hdr
The operation of this piece of control equipment is not necessary in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the VOC to be considered controlled for the purposes of emissions inventory, the afterburner (thermal oxidizer) must comply with the requirements of this permit during the time credit for control is taken. The VOC used during that time shall be considered controlled, and the control efficiency used is the limit given in this table.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Volatile Organic Compounds: greater than or equal to 95 percent destruction efficiency	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
The Permittee shall operate and maintain the thermal oxidizer any time that the associated process equipment controlled by the thermal oxidizer is processing castings that have been oil-quenched.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Temperature: greater than or equal to 1175 degrees F absolute minimum at the Combustion Chamber unless a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the average temperature recorded during the most recent MPCA approved performance test where compliance for VOC emissions was demonstrated. If the temperature drops below the minimum temperature limit, the VOC used during that time shall be considered uncontrolled until the minimum temperature limit is once again achieved. This shall be reported as a deviation.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records the combustion chamber temperature of the thermal oxidizer. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Fahrenheit. The recording device shall also calculate the three-hour rolling average combustion chamber temperature (if applicable).	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Daily Monitoring: The Permittee shall physically check the temperature recording device at least once each operating day to verify that it is working and recording properly.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)
Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the thermal oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. Stat. 116.07, subd. 4a; Equipment used under Minn. R. 7019.3020 (F)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/23/02

Facility Name: ME Global Inc

Permit Number: 13700073 - 001

**Subject Item:** EU 056 Mold wash station**Associated Items:** SV 037 General Ventilation - Finishing Area

What to do	Why to do it
VOC Usage: less than or equal to 70 tons/year using 12-month Rolling Sum	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2
Monthly Recordkeeping - By the 15th day of each month, the Permittee shall calculate and record a. The total quantity of VOC used in the mold wash operation during the previous month, and b. The 12-month rolling sum, by summing the 12 previous monthly quantities.	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200, subp. 2

## TABLE B: SUBMITTALS

05/23/02

Facility Name: ME Global Inc  
Permit Number: 13700073 - 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**

05/23/02

Facility Name: ME Global Inc

Permit Number: 13700073 - 001

What to send	When to send	Portion of Facility Affected
Testing Frequency Plan	due 60 days after Performance Test for VOC 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.	EU004

**TABLE B: RECURRENT SUBMITTALS**

05/23/02

Facility Name: ME Global Inc  
Permit Number: 13700073 - 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 to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year.	Total Facility

**APPENDIX B – Insignificant Activities****Facility Name:** ME Global, Inc.**Permit Number:** 13700073-001**Insignificant Activities and Applicable Requirements**

<b>Minn. R. 7007.1300, subpart</b>	<b>Rule Description of the Activity</b>	<b>Applicable Requirement</b>
3(A)	Fuel use: space heaters fueled by, kerosene, natural gas, or propane. <ul style="list-style-type: none"><li>• Facility has some space heating</li></ul>	Minn. R. 7011.0510/0515
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: <ul style="list-style-type: none"><li>a). filtered through an air cleaning system; and</li><li>b). vented inside of the building 100% of the time.</li></ul> <ul style="list-style-type: none"><li>• Three hand grinding stations and a shotblast booth, all vented through control equipment and exhausted inside 100% of the time</li></ul>	Minn. R. 7011.0710/0715
3(H)	Miscellaneous:	
	4. brazing, soldering or welding equipment; <ul style="list-style-type: none"><li>• Welding equipment used for general maintenance and repair</li></ul>	Minn. R. 7011.0710/0715
3(I)	Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than: <ul style="list-style-type: none"><li>1. 4,000 lbs/year of carbon monoxide; and</li><li>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.</li></ul> <ul style="list-style-type: none"><li>• Three ladle preheaters, all natural gas fired, 1 MMBtu/hour each</li><li>• Sand storage silo</li></ul>	Minn. R. 7011.0610 Minn. R. 7011.0710/0715

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 13700073-001**

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: 3325)
ME Global, Inc. 200 East Carterette Street Duluth, MN 55808  Contact:  Craig Mahlberg ME Global, Inc. 3901 University Avenue NE Minneapolis, MN 55421	200 East Carterette Street Duluth, St. Louis County, Minnesota

**1.2 Description Of The Permit Action**

ME Global is a steel foundry, producing steel parts primarily for the iron mining industry. Scrap steel and alloys are combined and melted in two electric arc furnaces. Castings are made by pouring the molten steel into sand molds produced by vacuum molding, which uses no binders. Primary emission sources at the facility are the electric arc furnaces, and the sand handling operations. Emissions from both sources are controlled with fabric filter baghouses.

**1.3 Description of any changes allowed with this permit issuance**

No physical changes to the facility are authorized by this permit issuance. This permit issuance does include a change in ownership.

**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.**

None

## 1.5 Facility Emissions:

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

	PM tpy	PM <sub>10</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	VOC tpy	All HAPs tpy
Total Facility Limited Potential Emissions	91.55	36.67	8.3	64.87	26.3	93.11	9.2

“True” actual emissions are not available, as the emission inventory incorrectly “double counted” some emission sources, applied incorrect emission factors, and didn’t apply control at all controlled units.

**Table 2. Facility and Permit Classification**

Classification	Major/Affected Source	*Synthetic Minor	*Minor
PSD		PM, PM <sub>10</sub> , VOC	All others
NAAR – Not applicable			
Part 70 Permit Program		PM <sub>10</sub> , VOC, HAPs	All others

\* Refers to potential emissions that are less than those specified as major by 40 CFR 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

## 2. Regulatory Overview of Facility

### New Source Review

The facility accepts limits to avoid being classified as a major source under the Prevention of Significant Deterioration program. The facility was constructed prior to August 7, 1980, and modifications made since then have not exceeded the significance threshold for any pollutant. The facility is located in an area that is attainment or unclassified for all criteria pollutants. The facility belongs to one of the 28 source categories subject to the 100 tpy threshold for major source status.

### Part 70 Permit Program

The facility has accepted limits to remain a non-major source under the Part 70 permit program.

### New Source Performance Standards

The facility is not subject to any New Source Performance Standards (NSPS). Previous permits have applied the requirements of NSPS Subpart AA to the electric arc furnaces. However, the standard as described in the background documents is specific to electric arc furnaces in steel plants or steel mills. Steel plant electric arc furnaces cast molten steel in to the shape of intermediate products; steel foundry electric arc furnaces cast molten steel into the shape of finished products. ME Global is a steel foundry, it produces cast finished products; therefore, Subpart AA does not apply. Further supporting this determination are two separate determinations obtained from the EPA Applicability Determinations Index. The two



determinations, control numbers 0100015 and NS01, are included as Attachment 3 to this document.

### **National Emission Standards for Hazardous Air Pollutants**

The facility is not a major source of HAPs, by virtue of federally enforceable production limits.

### **Minnesota Standards of Performance**

Portions of the facility are subject to the following standards:

- Minn. R. 7011.0710 - 7011.0735 – Standards of Performance for Industrial Process Equipment
- Minn. R. 7011.0610 – Standards of Performance for Fossil Fuel Burning Direct Heating Equipment

**Table 3. Regulatory Overview**

<b>EU, GP, or SV</b>	<b>Applicable Regulations</b>	<b>Comments:</b>
GP001	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment
	Title I Condition	Limits the quantity of metal charged per year and requires use of control equipment, to avoid major source status under PSD
	Minn. R. 7017.2025	Limits the hourly furnace throughput based on process rates achieved during stack testing
GP002	Title I Condition	Limits the quantity of binder used in the sand molds, to limit VOC/HAP emissions and avoid major source status under PSD
GP003	Minn. R. 7011.0610	Standards of Performance for Fossil Fuel Burning Direct Heating Equipment
	Title I Condition	Limits the VOC emissions from tempering oil-quenched castings and requires use of control equipment, to avoid major source status under PSD
GP004	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment
GP005, GP006	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment
	Title I Condition	Requires use of control equipment, to avoid major source status under PSD
GP007	Minn. R. 7011.0610	Standards of Performance for Fossil Fuel Burning Direct Heating Equipment
EU004	Minn. R. 7017.2025	Limits the hourly throughput based on process rates achieved during stack testing

EU, GP, or SV	Applicable Regulations	Comments:
EU004, cont.	Title I Conditions	Limits VOC emissions, limits process throughput, and requires operation of control equipment, to avoid major source status under PSD
EU009	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment
	Title I Condition	Requires use of control equipment, to avoid major source status under PSD
EU020	Minn. R. 7011.0610	Standards of Performance for Fossil Fuel Burning Direct Heating Equipment
EU056	Title I Condition	Limit VOC usage to avoid major source classification under PSD

### 3. Technical Information

#### 3.1. Calculations

**Charging/Melting/Tapping** – The facility has requested a limit of 60,000 tons per year of material charged. Charging involves adding scrap to the furnace; melting is the actual application of electric current to melt the metal; and tapping is pouring the liquid metal into a preheated ladle prior to casting. All three of these operations cannot take place simultaneously. On average, melting a batch takes approximately 2 hours. Charging and tapping operations take a combined one hour. Therefore, the assumption in the calculations of unrestricted PTE is that each furnace operates in the melting mode for 5840 hours (2/3 of a year), and in the charging and tapping modes for 2920 hours (1/3 of a year). This is conservative in that it doesn't account for down time or maintenance, but it results in a worst-case emissions estimate.

Emissions of criteria pollutants from the melting process are calculated using the emission factors for electric arc furnaces in steel foundries (SCC 3-04-007-01). Criteria pollutant emissions from tapping are calculated using emission factors for charging and tapping at a steel mill (AP-42). Hourly emissions are calculated based on the allowed hourly capacity of each furnace (set in a notice of compliance for stack testing completed in May 1993 – individual furnace limits were combined, as the furnaces are identical and there is no reason for separate limits). Annual emissions are calculated using the proposed limit (60,000 ton per year of metal charged). Metal HAP emissions are estimated using numbers provided by the Permittee, which were higher than the HAP numbers found in EPA's SPECIATE database for PM HAPs from steel electric arc furnaces. Volatile HAPs were calculated using EPA's SPECIATE database, profile number 9010 (VOC, secondary metal production – average).

The collection system for the charging/melting/tapping operations is not precisely a total enclosure. On the other hand, during the melting process, the furnace cover is closed and it is very nearly a total enclosure and intuitively better than 80%. The capture efficiency during charging and tapping is intuitively less than 80%, as the cover is removed from the furnace and collection point is then at the roof peak while the emissions occur at ground level. Observation

of the process showed the charging and tapping emissions drifting down the length of the building before slowly drifting up and to the collection point.

Capture efficiencies were estimated using document EPA-450/3-82-020a, "Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels in Steel Industry – Background Information for Proposed Revisions to Standards" (July 1983). The standards referred to in the title are NSPS, Subpart AA. The document consists in part of descriptions of capture efficiencies for electric arc furnaces, based on EPA's information gathering in the late 1970s and early 1980s. Since ME Global began operation around that time, and because they assumed they were subject to NSPS Subpart AA and were trying to comply with it, it was assumed that their collection system is similar to that described in the document. Based on that, the capture efficiency given for the melting operation is 90%, as described in the document for a direct evacuation system, rather than the "routine" 80% for a non-total-enclosure. For the charging and tapping operations, the company as likened the system to what is described in the referenced document as "building evacuation," for a capture efficiency of 95% - 100%. Our observation of the process left us unconvinced that the actual system qualified as building evacuation. Rather, they were given credit for 75%, which is the minimum efficiency for what is described in the document as a "canopy hood" located somewhere near the ceiling. The applicable portions of the referenced document are included as Attachment 4 to this document.

**Core Ovens** – Core oven emissions are a combination of the products of combustion of natural gas, which is used as a fuel, and the volatilization of VOCs in the core binder. Information from the Permittee is that binder usage should be limited to 100,000 pounds per year. HAPs from binder volatilization are from October 1994 issue of Modern Castings, which is frequently used in the industry for calculating VOC/HAP emissions from various types of binders.

**Oil Quenching** – Some of the castings are oil quenched. Stack testing on this process was done several years ago, and the emission factor from that test was used in the calculations. However, the permit requires an additional test to verify the factor. There is also a processing limit that was set following a compliance test in May 1993. The limit was initially set on a "per shift" basis, which at the time was 8 hours. At this time, the facility works 12 hour shifts, and has requested that the limit be on a 12 hour shift basis.

When oil-quenched castings are heat treated, there are additional emissions beyond what is normally experienced when heat treating water or air quenched castings. A stack test was done on December 21, 2001, to verify that VOC emissions from heat treating oil-quenched castings do not incur a requirement for a Title V permit. (Emissions from ovens that do not treat oil-quenched castings are based only on the combustion of natural gas.) While the heat treating operation typically lasts approximately 4 hours, the oil is burned off after the first 45 minutes. The permit requires that the afterburner be run for at least the first 2 hours of the heat treat cycle.

**Pouring/Cooling** – Pouring/cooling emissions were based on emission factors in AIRs and AP-42. Factors for aluminum and iron/steel casting were not used, because they assume green sand molds are used, which implies use of a binder in the sand. ME Global uses clean sand and no binder; the molds are vacuum molded. So, emission factors for zinc and copper casting were used, because they do not assume green sand molds, they assume die casting, which does not

involve sand or binder. HAPs were calculated as a percentage of PM emissions, using the data from SPECIATE for steel foundries.

**Sand Handling** – Shakeout criteria emissions are calculated using emission factors for steel foundries, based on quantity of metal processed. Hourly emissions are based on the capacity. Annual emissions are based on the quantity of steel processed. Criteria pollutant emissions from reclaim, coolers, mixers, and blowers are calculated using emission factors for steel foundries, based on quantity of sand handled. Hourly emissions are based on capacities of individual units, while annual emissions are calculated based on the annual amount of sand processed.

**Finishing** – Emissions for grinding/cleaning/finishing were calculated using AIRs and FIRE emission factors for steel foundries. HAPs are calculated using the SPECIATE data base, for metal HAPs as a percentage of PM, for steel foundries.

There was also a limit set on the pounds of casting per load for EU009, the blast cabinet. Since the emissions are calculated on the basis of pounds of particulate per ton of casting, the quantity “per load” is irrelevant, since the load time varies with the casting size anyway. Therefore, this limit was not included in the permit.

### 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 evaluating the monitoring included in the permit, the MPCA considered the following:

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limit;
- 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.

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 Requirements**

<b>Subject Item</b>	<b>Emission Limit (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
GP001	PM and opacity limits (Minn. Rules)	Daily pressure drop readings, O&M of control equipment	Controlled emissions are approximately 1.6% of the applicable limit. If the control equipment is properly maintained and operated, violation of the limit is

<b>Subject Item</b>	<b>Emission Limit (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
			unlikely
	Throughput limits (Title I and Minn. Performance test rules)	Recordkeeping	
GP002	Usage limit (Title I)	Recordkeeping	
GP003	PM and opacity (Minn. Rules)	Daily pressure drop monitoring, O&M of control equipment	Uncontrolled PTE is approximately 1.4% of the applicable limit; violation of the limit is unlikely
	VOC limit (Title I)	Monitoring of temperature, O&M of control equipment, and periodic performance testing	
GP004	PM and opacity (Minn. Rules)	None	Uncontrolled potential emissions are approximately 44% of the applicable limit; violation of the limit is unlikely
GP005	PM and opacity (Minn. Rules)	Daily pressure drop monitoring, O&M of control equipment	Controlled emissions are approximately 1.3% of the applicable limit. If the control equipment is properly maintained and operated, violation of the limit is unlikely
GP006	PM and opacity (Minn. Rules)	Daily pressure drop monitoring, O&M of control equipment	Controlled emissions of SV001, SV002, and SV003 are approximately 1.6%, 3.8%, and 3.2% of the respective applicable limits. If the control equipment is properly maintained and operated, violation of the limits is unlikely.
GP007	PM and opacity (Minn. Rules)	None	Uncontrolled emissions of each of SV010, SV013, SV014, SV019, SV020, SV021, SV022, SV023, SV034, and SV043 are approximately 1% of the respective applicable limits. Violation of the limits is unlikely.

<b>Subject Item</b>	<b>Emission Limit (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
EU004	VOC limit (Title I)	Daily pressure drop monitoring, O&M of control equipment, and periodic performance testing	
	Throughput limit (Title I)	Recordkeeping	
EU009	PM and opacity (Minn. Rules)	None	Controlled emissions are approximately 4.4% of the applicable limit. If the control equipment is properly maintained and operated, violation of the limit is unlikely
	Throughput limits (Minn. Performance test rules)	Recordkeeping	
EU020	PM and opacity (Minn. Rules)	Daily pressure drop monitoring, O&M of control equipment	Controlled emissions are approximately 1.7% of the applicable limit. If the control equipment is properly maintained and operated, violation of the limit is unlikely
EU056	VOC throughput (Title I)	Recordkeeping	

### 3.3 Insignificant Activities

Insignificant activities are listed in Appendix B of the permit.

### 4. Conclusion

Based on the information provided by ME Global, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700073-001 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

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Attachments: 1. Emission Calculations and PTE Summary  
2. Facility Description and CD-01 Forms  
3. NSPS Applicability Determinations  
4. EPA-450/3-82-020a, pages 4-1 through 4-19