

**AIR EMISSION PERMIT NO. 13700082- 003**

**IS ISSUED TO**

Internet Corporation  
for  
**NORTHERN CASTINGS CORP**  
555 25th Street West  
Hibbing, St. Louis County, MN 55746

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

Permit Type	Application Date	Permit Action and Issue Date
Total Facility Operating Permit	06/15/1995	-001, 05/07/2002
Major Amendment	02/04/2005	-002, 06/10/2005
Administrative Amendment	12/23/2005	-003, see date below

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.

<b>Permit Type:</b>	State; Limits to Avoid Pt 70/Limits to Avoid NSR	Administrative Amendment
<b>Issue Date:</b>	May 7, 2002	Date: April 20, 2006
<b>Expiration:</b>	Permit does not expire. All Title I Conditions do not expire.	

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

for Sheryl A. 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.

## **FACILITY DESCRIPTION:**

Northern Castings is a ductile iron foundry. The source consists of two electric induction furnaces, a holding furnace, pouring and cooling areas, a shakeout system, casting cleaning equipment, and a sand handling system.

The permit limits the facility to less than 100 tpy for criteria pollutants, and also to less than 25 tpy of total Hazardous Air Pollutants (HAP) and less than 10 tpy of individual HAPs, using a production limit and pollution control requirements. Thus, the facility is a non-major source under Part 70 and under New Source Review.

## **AMENDMENT DESCRIPTION**

### Permit Action 002

This was a major amendment to the state operating permit. The permit authorized the following changes:

- Replacement of a molding machine, which was not an emission unit. However, this replacement served to debottleneck the hourly capacity of the facility, which is offset by the installation of additional controls.
- Installation of a new sand wheel (EU051) in the shakeout area to replace the existing belt conveyor 3 (EU038) and sand screen (EU043). This did not debottleneck the facility further.

- Installation of a new mold cooling line (EU052) to replace the existing cooling line (EU004). The new cooling line is longer than the previous line.
- Installation of a new ladle (EU053), with a larger hourly capacity, to replace the existing ladle (EU003). This did not debottleneck the facility further.
- Installation of a Didion shakeout drum (EU054), to replace the existing shakeout operation (EU009). This did not debottleneck the facility further.
- Installation of a new baghouse (CE009) to replace two of the existing baghouses (CE004 and CE005). This resulted in a new stack (SV015) to replace the previous stacks (SV003 and SV004).
- Installation of a new baghouse (CE010) to control emissions from the furnaces and ladle operations. This replaced the operation of the two previous baghouses (CE001 and CE002). The associated stack is SV016.
- Ductwork was reconfigured and CE001 and CE002 are used to capture emissions that currently escape the facility uncontrolled through roof vents (currently uncaptured emissions from furnaces, ladle, pouring/cooling, shakeout, and internally venting air make up units).
- Increase the existing facility production limit from 39,000 tons per year to 55,000 tons per year.

In order to achieve compliance with ambient PM<sub>10</sub> standards, SV002 will be raised to a height of 69 feet above grade, daily operation of the bentonite bin (filling) is being limited to 3 hours per day, and the generator stack will be changed from a horizontal discharge to a vertical discharge. These actions, combined with the installation of the new baghouse CE010, result in an overall decrease in PM<sub>10</sub> emissions, even with the increase in production.

### Permit Action 003

This permit action is an Administrative Amendment to remove requirements for equipment that is not in existence at the facility. The previous permit action (002) authorized a new sand wheel (EU051) in the shakeout area to replace the existing belt conveyor 3 (EU038) and sand screen (EU043). However, as was described in the application for that amendment, it was not known whether the new sand wheel would work for their application until it was installed and tried. It was installed and did not work, and so Northern Castings will be keeping the belt conveyor (EU038); the sand screen (EU043) has been removed and is not affected. Permit action 002 required removal of EU038 and notification of removal within 15 days of startup of EU038. Since EU051 did not work, EU038 was not removed, and the requirement to remove it is being taken out of the permit with this action.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

A-1

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

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

**Subject Item: Total Facility**

<b>What to do</b>	<b>Why to do it</b>
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)
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
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit). If it is found that a particular piece of equipment can't be calibrated, the equipment may be replaced rather than calibrated.	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)
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
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

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

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
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)
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****A-3**

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** GP 001 Melting Operations**Associated Items:** EU 001 Induction Furnace 1

EU 002 Induction Furnace 2

EU 003 Ladle (to be replaced by EU053)

EU 053 Ladle (replaces EU003)

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 to each Associated Item listed above. (Potential emissions of furnaces at design capacity is 0.05 lb/hr each; potential emissions of ladles at design capacity is 0.3 lb/hr each; limits at stacks where emissions occur (SV001, SV010, and SV016) are 9.8 lb/hr, 9.8 lb/hr, and 20.6 lb/hr, respectively.)	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . This limit applies to each Associated Item listed above.	Minn. R. 7011.0715, subp. 1(B)
Material Usage: less than or equal to 55000 tons/year using 12-month Rolling Sum of metal melted. This limit applies to the two induction furnaces combined.	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
Production Limit: 13241.8 pounds per batch, based on total tons in a heat cycle. This limit applies individually to each furnace. The Permittee may not operate either emission unit at a higher production rate unless a performance test is conducted at a higher rate and MPCA staff determine compliance at that rate for that emission unit.	Minn. R. 7017.2025; Notice of Compliance dated June 29, 1995
CONTROL REQUIREMENTS (see also Subject Items CE001, CE002, CE010 for specific operating requirements)	hdr
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	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
Total Particulate Matter: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping: DAILY: Each day, record the quantity of metal melted, in tons. MONTHLY: By the 15th day of each month, calculate and record: a. The total quantity of metal melted during the previous month. b. The 12-month rolling sum of metal melted during the previous 12 months, by summing the 12 previous monthly metal melt quantities.	Title I Condition: Recordkeeping of limit used to avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7011.3000; and under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping: The Permittee shall record the quantity of melted metal produced in each furnace batch.	Minn. R. 7007.0800, subp. 4, 5, and 14

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** GP 002 Make-up Air Units**Associated Items:** EU 046 Air Makeup Unit 1

EU 048 Air Makeup Unit 2

EU 049 Air Makeup Unit 3

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . This limit applies individually to each unit listed in this group. [Maximum PTE of each unit based on fuel combustion capacity is approximately 0.0075 lbs/million Btu heat input.]	Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies individually to each unit listed in this group.	Minn. R. 7011.0515, subp. 2
Fuel Types Allowed: Natural gas and propane, by equipment design	Minn. R. 7005.0100, subp. 35a



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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item: GP 003 Pouring and Cooling Operations****Associated Items:** EU 047 Auto Pour Vessel

EU 052 Mold Cooling Conveyor

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 to each Associated Item listed above. (Combined potential emissions of all units included in group is 0.44 lb/hr; limits at the stacks where emissions occur (SV001, SV010, and SV011) are 9.8 lb/hr, 9.8 lb/hr, and 20.6 lb/hr, respectively.)	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . This limit applies to each Associated Item listed above.	Minn. R. 7011.0715, subp. 1(B)
CONTROL REQUIREMENTS (see also Subject Items CE001, CE002, CE008 for specific operating requirements)	hdr
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	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
Total Particulate Matter: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item: GP 004 Sand Handling Operations****Associated Items:** EU 005 Belt Conveyor 2 (used sand)

EU 006 Batch Hopper

EU 007 Sand Bin

EU 008 Sand Mullor

EU 010 Fluid Bed Cooler (sand)

EU 011 V Cooler (sand)

EU 012 Sand Elevator

EU 013 Belt Conveyor 5 (sand)

EU 032 Handblast

EU 038 Belt Conveyor 3

EU 039 Belt Conveyor 4

EU 041 Sand Hopper

EU 042 Mullor Feed Conveyor

EU 044 Surge Bin

EU 050 Sand Screen

EU 052 Mold Cooling Conveyor

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 to each Associated Item listed above. (Combined potential emissions of all units included in group is 12.0 lb/hr; limits at the stacks where emissions occur (SV002 and SV011) are 13.4 lb/hr and 20.6 lb/hr, respectively.)	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . This limit applies to each Associated Item listed above.	Minn. R. 7011.0715, subp. 1(B)
CONTROL REQUIREMENTS (see also Subject Items CE006, CE008 for specific operating requirements)	hdr
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above which is controlled by CE008)	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
Total Particulate Matter: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above which is controlled by CE008)	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 80 percent control efficiency (applies to each Associated Item listed above which is controlled by CE006)	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
Total Particulate Matter: greater than or equal to 80 percent control efficiency (applies to each Associated Item listed above which is controlled by CE006)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** GP 005 Shakeout Operations**Associated Items:** EU 031 Conveyor Belt A (product)

EU 040 Didion Feeder

EU 054 Didion Drum

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 to each Associated Item listed above. (Combined potential emissions of all units included in group is 0.33 lb/hr; limits at the stacks where emissions occur (SV001, SV002, SV010, and SV011) are 9.8 lb/hr, 13.4 lb/hr, 9.8 lb/hr, and 20.6 lb/hr, respectively.)	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . This limit applies to each Associated Item listed above.	Minn. R. 7011.0715, subp. 1(B)
CONTROL REQUIREMENTS (see also Subject Items CE001, CE002, CE006, CE008 for specific operating requirements)	hdr
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	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
Total Particulate Matter: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item: GP 006 Cleaning and Finishing****Associated Items:** EU 014 Tumblast Shotblast

EU 015 Grinder 1

EU 016 Grinder 2

EU 017 Grinder 3

EU 018 Grinder 4

EU 019 South Tumbler

EU 020 North Tumbler

EU 021 Inspection Grinder 1

EU 022 Inspection Grinder 2

EU 023 Inspection Grinder 3

EU 024 Inspection Grinder 4

EU 025 Inspection Grinder 5

EU 026 Inspection Grinder 6

EU 027 Inspection Grinder 7

EU 028 Inspection Grinder 8

EU 029 Grinder

EU 030 Desprueing Area

EU 037 Conveyor Belt B

<b>What to do</b>	<b>Why to do it</b>
<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 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 to each Associated Item listed above. (Combined potential emissions of all units included in group is 1.77 lb/hr; limit at the stack where emissions occur (SV015) is 20.8 lb/hr.)	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . This limit applies to each Associated Item listed above.	Minn. R. 7011.0715, subp. 1(B)
<b>CONTROL REQUIREMENTS</b> (see also Subject Item CE009 for specific operating requirements)	hdr
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	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
Total Particulate Matter: greater than or equal to 99 percent control efficiency (applies to each Associated Item listed above)	Title I Condition: To avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item: GP 007 HAP Calculations****Associated Items:** EU 005 Belt Conveyor 2 (used sand)

EU 006 Batch Hopper

EU 007 Sand Bin

EU 008 Sand Mullor

EU 010 Fluid Bed Cooler (sand)

EU 011 V Cooler (sand)

EU 012 Sand Elevator

EU 013 Belt Conveyor 5 (sand)

EU 031 Conveyor Belt A (product)

EU 032 Handblast

EU 038 Belt Conveyor 3

EU 039 Belt Conveyor 4

EU 040 Didion Feeder

EU 041 Sand Hopper

EU 042 Mullor Feed Conveyor

EU 044 Surge Bin

EU 047 Auto Pour Vessel

EU 050 Sand Screen

EU 052 Mold Cooling Conveyor

EU 054 Didion Drum

What to do	Why to do it
EMISSION LIMITS	hdr
HAP-Single: less than or equal to 7.0 tons/year using 12-month Rolling Sum , to be calculated as described in this permit by the 15th day of each month for the previous 12-month period. Calculations shall include all HAP emissions from the sources listed in GP007.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2; to avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200
RECORDKEEPING REQUIREMENTS	hdr
Daily Recordkeeping: Each day, record the quantity and HAP content of each HAP-containing material used.	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2; to avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200
Monthly Recordkeeping: By the 15th day of each month, determine and record the following:  1. The quantity of each HAP-containing material used during the previous month;  2. The individual HAP emissions for the previous month; and  3. The 12-month rolling sum of individual HAP emissions for the previous month.	Minn. R. 7007.0800, subp. 4 and 5
Calculations: Monthly HAP emissions shall be calculated as follows for each individual HAP:  HAP(I) - HAP(MIX) + HAP(PCS)  Where: HAP(I) = total emissions of the individual HAP for the previous month, in tons HAP(MIX) = emissions of the individual HAP from mixing the binder resins and catalysts with sand, in tons, calculated as shown below HAP(PCS) = emissions of the individual HAP from pouring, cooling, and shakeout, in tons, calculated as shown below.	Minn. R. 7007.0800, subp. 4 and 5

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

<p>Calculations: HAP(MIX)</p> $\text{HAP(MIX)} = (\text{CR1} \times \text{H1} \times \text{ER1} / 2000) + (\text{CR2} \times \text{H2} \times \text{ER2} / 2000) + \dots \text{ etc.}$ <p>Where:  HAP(MIX) = the total emissions for the individual HAP generated by mixing sand and binder to make molds or cores during the previous month (tons)  CR1, CR2, etc. = the quantity of catalyst and/or resin used in each binder formula (molds and cores) during the previous month (pounds)  H1, H2, etc. = the individual HAP content of the catalyst and/or resin in each binder formula used during the previous month (individual HAP, weight percent)  ER1, ER2, etc. = the evaporation rate of the individual HAP for the catalyst or resin in each binder formula used during the previous month (percent) (See Note 1).</p>	Minn. R. 7007.0800, subp. 4 and 5
<p>Calculations: HAP(PCS)</p> $\text{HAP(PCS)} = (\text{B1} \times \text{HE1} / 2000) + (\text{B2} \times \text{HE2} / 2000) + \dots \text{ etc.}$ <p>Where:  HAP(PCS) = the total emissions of the individual HAP generated by pouring/cooling and shakeout during the previous month (tons)  B1, B2, etc. = the quantity of each individual binder used in molds during the previous month (pounds)  HE1, HE2, etc. = the emission factor for the individual HAP for each individual binder used in molds during the previous month (pound/pound) (See Note 2).</p>	Minn. R. 7007.0800, subp. 4 and 5
<p>Note 1: Evaporation rates for individual HAPs from resins and catalysts shall be those cited in the May 6, 1996 MPCA document "Iron Foundry Emission Calculations Guidance" (relevant sections reproduced in Appendix C) or from manufacturer's data. If manufacturer's data is used, the Permittee shall keep a record of the data and all supporting documentation. Any changes to the evaporation rate shall be submitted to the MPCA with the annual compliance certification. If no evaporation rate data is available, an evaporation rate of 50% shall be assumed.</p> <p>The Permittee may propose to use a resin or catalyst-specific evaporation rate derived from MPCA approved performance tests. If approved by the MPCA, this resin or catalyst-specific evaporation rate shall be used.</p>	Minn. R. 7007.0800, subp. 4 and 5
<p>Note 2: The emission factor for the particular pollutant shall be the emission factor for the appropriate binder from Appendix B (reproduced from the May 67, 1998 MPCA document "Iron Foundry Emission Calculations Guidance"). The Permittee shall keep records of the binders used, the corresponding emission factors, and all supporting documentation. Any changes to the emission factors used shall be submitted to the MPCA with the annual compliance certification.</p>	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Northern Castings Corp  
Permit Number: 13700082 - 003

Subject Item: EU 003 Ladle (to be replaced by EU053)

- 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 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
  - GP 001 Melting Operations
  - SV 001 Power Vent Baghouse
  - SV 010 Power Vent Baghouse
  - SV 016 Furnace and Ladle Baghouse

What to do	Why to do it
Equipment Removal and/or Dismantlement: due 15 days after Initial Startup of EU053.	Minn. R. 7019.0100, subp. 1

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** EU 035 Generator**Associated Items:** SV 008 Generator

What to do	Why to do it
EMISSION AND OPERATING LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Fuel Types Allowed: Diesel fuel only, by equipment design	Minn. R. 7005.0100, subp. 35a
STACK HEIGHT REQUIREMENTS	hdr
Stack Direction: The exhaust stack (SV008) shall exhaust vertically.	40 CFR Pt. 50; Minn. Stat. Sec. 116.07, subds. 4a and 9; Minn. R. 7007.0100, subps. 7A, 7L, and 7M; Minn. R. 7007.0800, subps. 1, 2, and 4; Minn. R. 7009.0010-7009.0080
RECORDKEEPING REQUIREMENTS	hdr
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
Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of diesel fuel, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subps. 4 & 5



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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** EU 036 Bentonite Bin**Associated Items:** CE 007 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 009 Bentonite Bin

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. (Potential emissions of the unit is less than 0.1 lb/hr; limit at the stack (SV009) is 26.4 lb/hr.)	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Filling the Bentonite Bin: Not more than 3 hours per calendar day to be spent on filling the bentonite bin.	40 CFR Pt. 50; Minn. Stat. Sec. 116.07, subds. 4a and 9; Minn. R. 7007.0100, subps. 7A, 7L, and 7M; Minn. R. 7007.0800, subps. 1, 2, and 4; Minn. R. 7009.0010-7009.0080
RECORDKEEPING REQUIREMENTS	hdr
Daily Recordkeeping: Each day that EU036 is operated, record and maintain documentation of the number of hours operated.	Minn. R. 7007.0800. subp. 4 and 5
CONTROL REQUIREMENTS (CE007)	hdr
The Permittee shall maintain and operate the control equipment at all times that any emission unit controlled by the equipment (listed above as Associated Items) is in operation. The Permittee shall operate and maintain the control equipment in accordance with the Operation and Maintenance (O & M) Plan.	Minn. R. 7007.0800, subp. 2 and 14
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	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
Visible Emissions: The Permittee shall check the fabric filter stack (SV 009) for any visible emissions each time the bentonite bin is filled during daylight hours.	Minn. R. 7007.0800, subp. 4 and 5
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
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - visible emissions are observed during operation; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall 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 fabric 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

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** CE 001 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**Associated Items:** EU 001 Induction Furnace 1

EU 003 Ladle (to be replaced by EU053)

EU 031 Conveyor Belt A (product)

EU 040 Didion Feeder

EU 046 Air Makeup Unit 1

EU 047 Auto Pour Vessel

EU 048 Air Makeup Unit 2

EU 049 Air Makeup Unit 3

EU 053 Ladle (replaces EU003)

EU 054 Didion Drum

What to do	Why to do it
The Permittee shall maintain and operate the control equipment at all times that any emission unit controlled by the equipment (listed above as Associated Items) is in operation. The Permittee shall operate and maintain the control equipment in accordance with the Operation and Maintenance (O & M) Plan.	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
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 8 inches of water column . 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
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.	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
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7007.0800, subp. 4
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
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 fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** CE 002 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

**Associated Items:** EU 002 Induction Furnace 2

EU 003 Ladle (to be replaced by EU053)

EU 031 Conveyor Belt A (product)

EU 040 Didion Feeder

EU 046 Air Makeup Unit 1

EU 047 Auto Pour Vessel

EU 048 Air Makeup Unit 2

EU 049 Air Makeup Unit 3

EU 053 Ladle (replaces EU003)

EU 054 Didion Drum

What to do	Why to do it
The Permittee shall maintain and operate the control equipment at all times that any emission unit controlled by the equipment (listed above as Associated Items) is in operation. The Permittee shall operate and maintain the control equipment in accordance with the Operation and Maintenance (O & M) Plan.	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
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 8 inches of water column . 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
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.	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
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7007.0800, subp. 4
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
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 fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item: CE 006 Wet Scrubber - High Efficiency****Associated Items:** EU 006 Batch Hopper

EU 008 Sand Mullor

EU 010 Fluid Bed Cooler (sand)

EU 011 V Cooler (sand)

EU 039 Belt Conveyor 4

EU 040 Didion Feeder

EU 041 Sand Hopper

EU 054 Didion Drum

What to do	Why to do it
The Permittee shall maintain and operate the control equipment at all times that any emission unit controlled by the equipment (listed above as Associated Items) is in operation. The Permittee shall operate and maintain the control equipment in accordance with the Operation and Maintenance (O & M) Plan.	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
Pressure Drop: greater than or equal to 4 inches of water column . 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
Water flow rate: greater than or equal to 60 gallons/minute . The Permittee shall record the water flow rate 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
Recordkeeping of Pressure Drop and Water Flow Rate. The Permittee shall record the time and date of each pressure drop reading and each water flow rate reading and whether or not the reading was within the range specified in this permit.	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
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored scrubber is in operation.	Minn. R. 7007.0800, subp. 4
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
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 recorded water flow rate is outside the required operating range; or - the scrubber or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the scrubber. 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
STACK HEIGHT REQUIREMENTS	hdr
Stack Height: The minimum exhaust stack height for SV002 shall be 69.0 feet above grade.	40 CFR Pt. 50; Minn. Stat. Sec. 116.07, subds. 4a and 9; Minn. R. 7007.0100, subps. 7A, 7L, and 7M; Minn. R. 7007.0800, subps. 1, 2, and 4; Minn. R. 7009.0010-7009.0080
TESTING REQUIREMENTS	hdr
Performance Test: due before end of each 60 months starting 09/30/2002 to measure total particulate matter from SV002. The limit against which the measured amount is compared will be determined from Minn. R. 7011.0715, subp. 1(A), based upon actual operating conditions of CE006 and all emission units controlled by CE006 at the time of the test. The next test is due 9/30/07, and every 60 months thereafter.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Northern Castings Corp  
Permit Number: 13700082 - 003

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item: CE 008 Fabric Filter - Low Temperature, i.e., T<180 Degrees F****Associated Items:** EU 005 Belt Conveyor 2 (used sand)

EU 007 Sand Bin

EU 012 Sand Elevator

EU 013 Belt Conveyor 5 (sand)

EU 031 Conveyor Belt A (product)

EU 032 Handblast

EU 038 Belt Conveyor 3

EU 042 Mullor Feed Conveyor

EU 044 Surge Bin

EU 047 Auto Pour Vessel

EU 050 Sand Screen

EU 052 Mold Cooling Conveyor

What to do	Why to do it
The Permittee shall maintain and operate the control equipment at all times that any emission unit controlled by the equipment (listed above as Associated Items) is in operation. The Permittee shall operate and maintain the control equipment in accordance with the Operation and Maintenance (O & M) Plan.	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
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 8 inches of water column . 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
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.	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
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7007.0800, subp. 4
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
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 fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item: CE 009 Fabric Filter - Low Temperature, i.e., T<180 Degrees F****Associated Items:** EU 014 Tumblast Shotblast

EU 015 Grinder 1

EU 016 Grinder 2

EU 017 Grinder 3

EU 018 Grinder 4

EU 019 South Tumbler

EU 020 North Tumbler

EU 021 Inspection Grinder 1

EU 022 Inspection Grinder 2

EU 023 Inspection Grinder 3

EU 024 Inspection Grinder 4

EU 025 Inspection Grinder 5

EU 026 Inspection Grinder 6

EU 027 Inspection Grinder 7

EU 028 Inspection Grinder 8

EU 029 Grinder

EU 030 Desprueing Area

EU 037 Conveyor Belt B

What to do	Why to do it
The Permittee shall maintain and operate the control equipment at all times that any emission unit controlled by the equipment (listed above as Associated Items) is in operation. The Permittee shall operate and maintain the control equipment in accordance with the Operation and Maintenance (O & M) Plan.	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
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 8 inches of water column . 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
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.	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
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7007.0800, subp. 4
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
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 fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14

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

04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

**Subject Item:** CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**Associated Items:** EU 001 Induction Furnace 1

EU 002 Induction Furnace 2

EU 003 Ladle (to be replaced by EU053)

EU 053 Ladle (replaces EU003)

What to do	Why to do it
The Permittee shall maintain and operate the control equipment at all times that any emission unit controlled by the equipment (listed above as Associated Items) is in operation. The Permittee shall operate and maintain the control equipment in accordance with the Operation and Maintenance (O & M) Plan.	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
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 8 inches of water column. 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
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.	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
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7007.0800, subp. 4
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
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 fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14



## TABLE B: SUBMITTALS

B-1 04/20/06

Facility Name: Northern Castings Corp  
Permit Number: 13700082 - 003

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

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:

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

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

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

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

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

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****B-2** 04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	EU053
Notification of the date of Equipment Removal/Dismantlement	due 15 days after Equipment Removal and/or Dismantlement	EU003

**TABLE B: RECURRENT SUBMITTALS****B-3** 04/20/06

Facility Name: Northern Castings Corp

Permit Number: 13700082 - 003

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 05/07/2002 . 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 starting 05/07/2002 (for the previous calendar year). To be submitted on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year.	Total Facility

**APPENDIX B: VOC and HAP Emission Factors for Pouring/Cooling/Shakeout**  
**Facility Name: Northern Castings Corporation**  
**Permit Number: 13700082-003**

Tables B.1 through B.11 were taken from “Calculating Emission Factors for Pouring, Cooling and Shakeout.” This article was published in the October 1994 edition of Modern Casting which is a monthly publication of the American Foundrymen’s Society.

**Table B.1. Phenolic Nobake Binder**

Binder System Phenolic Nobake Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000039
Hydrogen Sulfide	0.001462
Nitrogen Oxides	0.000029
Sulfur Dioxide	0.015107
Total Hydrocarbons	0.012159
Acrolein	0.000005
Benzene	0.011209
Formaldehyde	0.000010
Hydrogen Cyanide	0.000029
M-Xylene	0.000097
Naphthalene	0.000049
O-Xylene	0.000049
Phenol	0.000975
Toluene	0.000634
Total Aromatic Amines	0.000049
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.003070
Total HAPs <sup>[5]</sup>	0.016174

**Table B.2. Phenolic Urethane Binder**

Binder System Phenolic Urethane Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000083
Hydrogen Sulfide	0.000057
Nitrogen Oxides	0.000044
Sulfur Dioxide	0.000061
Total Hydrocarbons	0.023377
Acrolein	0.000031
Benzene	0.005351
Formaldehyde	0.000022
Hydrogen Cyanide	0.001053
M-Xylene	0.000439
Naphthalene	0.000022
O-Xylene	0.000132
Phenol	0.003904
Toluene	0.000833
Total Aromatic Amines	0.000351
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.000219
Total HAPs	0.012355

**Table B.3. Medium Nitrogen Furan TSA Catalyst Binder**

Binder System Medium Nitrogen Furan TSA Catalyst Index: Resin	Pounds of Chemical Released to Air per Pound of Index	Binder System Medium Nitrogen Furan TSA Catalyst Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000202	M-Xylene	0.000243
Hydrogen Sulfide	0.000486	Naphthalene	0.000040
Nitrogen Oxides	0.000312	O-Xylene	0.000040
Sulfur Dioxide	0.004858	Phenol	0.000101
Total Hydrocarbons	0.017178	Toluene	0.008826
Acrolein	0.000016	Total Aromatic Amines	0.000364
Benzene	0.004534	Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.017004
Formaldehyde	0.000065	Total HAPs	0.031842
Hydrogen Cyanide	0.000607		

**Table B.4. Phenolic Hotbox Binder**

Binder System Phenolic Hotbox Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.010931
Hydrogen Sulfide	0.000009
Nitrogen Oxides	0.000638
Sulfur Dioxide	0.000036
Total Hydrocarbons	0.005165
Acrolein	0.000009
Benzene	0.001002
Formaldehyde	0.000006
Hydrogen Cyanide	0.001184
M-Xylene	0.000121
Naphthalene	0.000030
O-Xylene	0.000030
Phenol	0.000203
Toluene	0.000182
Total Aromatic Amines	0.001275
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.000273
Total HAPs	0.004318

**Table B.5. Green Sand Binder**

Binder System Green Sand Index: Seacoal	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000065
Hydrogen Sulfide	0.000832
Nitrogen Oxides	0.000562
Sulfur Dioxide	0.000253
Total Hydrocarbons	0.011941
Acrolein	0.000002
Benzene	0.000611
Formaldehyde	0.000004
Hydrogen Cyanide	0.000118
M-Xylene	0.000021
Naphthalene	0.000021
O-Xylene	0.000021
Phenol	0.000131
Toluene	0.000063
Total Aromatic Amine	0.000021
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.000063
Total HAPs	0.001076

**Table B.6. Core Oil Binder**

Binder System Core Oil Index: Core Oil	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.000038
Hydrogen Sulfide	0.000057
Nitrogen Oxides	0.000081
Sulfur Dioxide	0.000115
Total Hydrocarbons	0.028737
Acrolein	0.000077
Benzene	0.002344
Formaldehyde	0.000096
Hydrogen Cyanide	0.000086
M-Xylene	0.000239
Naphthalene	0.000048
O-Xylene	0.000287
Phenol	0.000057
Toluene	0.000478
Total Aromatic Amines	0.000096
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.000766
Total HAPs	0.004574

**Table B.7. Shell Binder**

Binder System Shell Index: Resin	Pounds of Chemical Released to Air per Pound of Index
Ammonia	0.003860
Hydrogen Sulfide	0.000094
Nitrogen Oxides	0.000994
Sulfur Dioxide	0.003509
Total Hydrocarbons	0.022421
Acrolein	0.000047
Benzene	0.006667
Formaldehyde	0.000035
Hydrogen Cyanide	0.010526
M-Xylene	0.000585
Naphthalene	0.000058
O-Xylene	0.000117
Phenol	0.002456
Toluene	0.002807
Total Aromatic Amines	0.002339
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.000585
Total HAPs	0.026222

**Table B.8. Low Nitrogen Furan Binder**

Binder System	Pounds of Chemical
Low Nitrogen Furan	Released to Air per
Index: Resin	Pound of Index
Ammonia	0.000040
Hydrogen Sulfide	0.000405
Nitrogen Oxides	0.000012
Sulfur Dioxide	0.000607
Total Hydrocarbons	0.007814
Acrolein	0.000028
Benzene	0.000648
Formaldehyde	0.000267
Hydrogen Cyanide	0.000368
M-Xylene	0.002227
Naphthalene	0.000040
O-Xylene	0.000729
Phenol	0.000024
Toluene	0.000121
Total Aromatic Amines	0.000081
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.000243
Total HAPs	0.004777

**Table B.9. Sodium Silicate-Ester Binder**

Binder System	Pounds of Chemical
Sodium Silicate-Ester	Released to Air per
Index: Sugar + Ester	Pound of Index
Ammonia	0.000038
Hydrogen Sulfide	0.000197
Nitrogen Oxides	0.000028
Sulfur Dioxide	0.000244
Total Hydrocarbons	0.022782
Acrolein	0.000028
Benzene	0.001410
Formaldehyde	0.000169
Hydrogen Cyanide	0.000179
M-Xylene	0.000094
Naphthalene	0.000005
O-Xylene	0.000094
Phenol	0.000273
Toluene	0.000282
Total Aromatic Amines	0.000094
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.001316
Total HAPs	0.003943

**Table B.10. Furan Hotbox Binder**

Binder System	Pounds of Chemical
Furan Hotbox	Released to Air per
Index: Resin	Pound of Index
Ammonia	0.019579
Hydrogen Sulfide	0.000060
Nitrogen Oxides	0.000411
Sulfur Dioxide	0.000088
Total Hydrocarbons	0.006259
Acrolein	0.000013
Benzene	0.000537
Formaldehyde	0.000009
Hydrogen Cyanide	0.003474
M-Xylene	0.000032
Naphthalene	0.000032
O-Xylene	0.000032
Phenol	0.000016
Toluene	0.000032
Total Aromatic Amines	0.003032
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.000158
Total HAPs	0.007364

**Table B.11. Alkyd Isocyanate Binder**

Binder System	Pounds of Chemical
Alkyd Isocyanate	Released to Air per
Index: Resin + Isocyanate	Pound of Index
Ammonia	0.000037
Hydrogen Sulfide	0.000007
Nitrogen Oxides	0.000355
Sulfur Dioxide	0.000040
Total Hydrocarbons	0.035567
Acrolein	0.000088
Benzene	0.005336
Formaldehyde	0.000106
Hydrogen Cyanide	0.000175
M-Xylene	0.002522
Naphthalene	0.000037
O-Xylene	0.003838
Phenol	0.000110
Toluene	0.001535
Total Aromatic Amines	0.000037
Total C <sub>2</sub> to C <sub>5</sub> Aldehydes	0.002156
Total HAPs	0.015939

**APPENDIX C: VOC and HAP Evaporation Rates for Sand/Resin/Catalyst Mixing**  
**Facility Name: Northern Castings Corporation**  
**Permit Number: 13700082-003**

The following tables were taken from: “Form R Reporting of Binder Chemicals Used in Foundries,” Second Edition (1998), published by the American Foundrymen’s Society, Inc. and the Casting Industry Suppliers Association.

The information found for different types of binder systems can be used to calculate the amount of individual HAP’s and total VOC’s that are emitted when sand is mixed with binder, but before the mold or core is exposed to molten metal. In order to do this, the HAP content and VOC contents of each part of the binder system must be known, either from the material safety data sheet (MSDS), or the manufacturer.

***Table C.1 Alkyd Oil Binder***

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining Mold/Core</b>
<b>Resin</b>			
Lead (7439-92-1)	0	0	100
Cobalt (7440-48-4)	0	0	100
<b>Coreactant</b>			
Methylene Phenylene Isocyanate (101-68-8) <sup>(1)</sup>	99.99	<0.01	0.01
Polymeric diphenylmethane Diisocyanate (9016-87-9)	99.99	<0.01	0.01

<sup>(1)</sup> Listed as CAS #101-68-8, MBI, Methylenebis (phenyl, isocyanate) on 313 chemical list

***Table C.2 Acrylic/Epoxy/SO<sub>2</sub> Binder***

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Part I</b>			
Cumene Hydroperoxide (80-15-9)	97	0	3
Cumene (98-82-8)	0	1.5	98.5

***Table C.3 Furan Hotbox Binder***

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Formaldehyde (50-00-0)	95	5	0

**Table C.4 Furan Nobake Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Phenol (108-95-2)	98+	0	2
Formaldehyde (50-00-0)	98	2	0
Methyl Alcohol (67-56-1)	0	50	50
<b>Catalyst</b>			
Methyl Alcohol (67-56-1)	0	50	50
Sulfuric Acid (8774-93-9)	100	0	0

**Table C.5 Furan/SO<sub>2</sub> Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Formaldehyde (50-00-0)	98	2	0
Methyl Alcohol (65-56-1)	0	50	50
<b>Oxidizer</b>			
Dimethyl Phthalate (131-11-3)	0	50	50
Methyl Ethyl Ketone (78-93-3)	0	50	50

**Table C.6 Furan Warmbox Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Formaldehyde(50-00-0)	95	5	0
<b>Catalyst</b>			
Methyl Alcohol(67-56-1)	0	100	0



**Table C.7 Phenolic Baking Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Part I</b>			
Phenol (108-95-2)	95	0	5
Formaldehyde(50-00-0)	95	5	0

**Table C.8 Phenolic Ester Nobake Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Formaldehyde (50-00-0)	98	2	0
Phenol (108-95-2)	98	0	2

**Table C.9 Phenolic Ester Coldbox Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Formaldehyde (50-00-0)	98	2	0
Phenol (108-95-2)	98	0	2
Glycol Ethers <sup>(1)</sup>	0	50	50
<b>Catalyst</b>			
Methanol (67-56-1)	0	50	50

<sup>(1)</sup> Listed as Certain Glycol Ethers under (c) Chemical categories on the SARA 313 chemical list.

**Table C.10 Phenolic Hotbox Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Formaldehyde (50-00-0)	95	5	0
Phenol (108-95-2)	95	0	5

**Table C.11 Phenolic Nobake - Acid Catalyzed Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Resin</b>			
Phenol (108-95-2)	98	0	2
Formaldehyde (50-00-0)	98	2	0
Methyl Alcohol (67-56-1)	0	50	50
<b>Acid</b>			
Methyl Alcohol (67-56-1)	0	50	50
Sulfuric Acid (7664-93-9)	100	0	0

**Table C.12 Phenolic Novolac Flake Binder - Coating Operations**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Part I</b>			
Phenol (108-95-2)	95	0	5
<b>Part II</b>			
Ammonia <sup>(1)</sup> (7664-41-7)	0	100	0

<sup>(1)</sup> Ammonia is generated as a breakdown product from the hexamethylenetetramine (hexa). As the hexa breaks down 40% is converted to ammonia. The percentages listed here are for the ammonia generated from the hexa.

**Table C.13 Phenolic Novolac Liquid Binder - Coating Operations**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Part I</b>			
Phenol (108-95-2)	95	0	5
Formaldehyde (50-00-0)	95	5	0
Methanol (67-56-1)	0	100	0

**Table C.14 Phenolic Urethane Nobake Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Part I</b>			
Phenol (108-95-2)	98	0	2
Formaldehyde (50-00-0)	98	2	0
Naphthalene (91-20-3)	0	5.85	94.15
1,2,4 Trimethyl Benzene (95-63-6)	0	5.85	94.15
Cumene (98-82-8)	0	5.85	94.15
Xylene (1330-20-7)	0	5.85	94.15
<b>Part II</b>			
Methylene Phenylene Isocyanate <sup>(1)</sup> (101-68-8)	99.99	0	0.01
Polymeric diphenylmethane Diisocyanate (9016-87-9)	99.99	0	0.01
Naphthalene (91-20-3)	0	5.85	94.15
1,2,4 Trimethylbenzene (95-63-6)	0	5.85	94.15
Cumene (98-82-8)	0	5.85	94.15
Xylene (1330-20-7)	0	5.85	94.15

<sup>(1)</sup> Listed as CAS #101-68-8, Methylenebis (phenylisocyanate)(MDI) under (c) Chemical categories on the SARA 313 chemical list.

**Table C.15 Phenolic Urethane Coldbox Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Part I</b>			
Formaldehyde (50-00-0)	98	2	0
Phenol (108-95-2)	98	0	2
Xylene (1330-20-7)	0	3.25	96.75
Cumene (98-82-8)	0	3.25	96.75
Naphthalene (91-20-3)	0	3.25	96.75
1,2,4 Trimethylbenzene (95-63-6)	0	3.25	96.75
<b>Part II</b>			
Methylene Phenylene Isocyanate (101-68-8) <sup>(1)</sup>	99.99	0	0.01
Polymeric diphenylmethane Diisocyanate (9016-87-9)	99.99	0	0.01
Naphthalene (91-20-3)	0	3.25	96.75
Xylene (1330-20-7)	0	3.25	96.75
Biphenyl (95-52-4)	0	3.25	96.75

<sup>(1)</sup> Listed as CAS #101-68-8, Methylenebis (phenylisocyanate)(MDI) under (c) Chemical categories on the SARA 313 chemical list.

**Table C.16 Urea Formaldehyde Binder**

	<b>% Reacted</b>	<b>% Evaporated</b>	<b>% Remaining in Mold/Core</b>
<b>Part I</b>			
Formaldehyde (50-00-0)	98	2	0

**APPENDIX D – Insignificant Activities****Facility Name:** Northern Castings Corporation**Permit Number:** 13700082-003**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>• Ten space heaters fired with natural gas/propane,</li></ul>	Minn. R. 7011.0510/0515
3(G)	Emissions from a laboratory, as defined in the subpart. <ul style="list-style-type: none"><li>• Metal testing laboratory</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:  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"><li>• Air Makeup Unit</li><li>• Holding Furnace</li></ul>	<ul style="list-style-type: none"><li>• Minn. R. 7011.0510/0515</li><li>• Minn. R. 7011.0710/0715</li></ul>
3(K)	Infrequent use of spray paint equipment for routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source, such as spray painting of buildings, machinery, vehicles, and other supporting equipment. <ul style="list-style-type: none"><li>• Miscellaneous spray painting is done for plant maintenance purposes</li></ul>	Minn. R. 7011.0710/0715

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 13700082-003**

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

**1. General Information**

**1.1. Applicant and Stationary Source Location:**

<b>Applicant/Address</b>	<b>Stationary Source/Address (SIC Code: 3321)</b>
Intermet Corporation 5445 Corporate Drive Troy, MI 48098	Northern Castings Corporation 555 25th Street West Hibbing, St. Louis County 55746
Contact: <b>Michael Lekatz</b> Phone: <b>(218) 263-8871 ext. 17</b>	

**1.2. Description of the Permitted Facility**

Northern Castings is a ductile iron foundry. The source consists of two electric induction furnaces, a holding furnace, pouring and cooling areas, a shakeout system, casting cleaning equipment, and a sand handling system.

**1.3 Description of the Activities Allowed by this Permit Action**

This permit action is an administrative amendment to a state operating permit. The following changes were made:

- SV002 – removed notification of completion of stack height extension, since this has been done and the notification submitted.
- EU004 – removed the dismantlement and notification requirements from the permit, since this unit has been removed and the notification submitted.
- EU009 - removed the dismantlement and notification requirements from the permit, since this unit has been removed and the notification submitted.
- EU038 – removed the dismantlement and notification requirements from the permit, since this unit will be kept in service. Also revised the name of the unit [removed “(to be replaced by EU051)”, since EU051 did not work and was not kept].
- EU043 - removed the dismantlement and notification requirements from the permit, since this unit has been removed and the notification submitted.
- EU051 – removed notification requirements from the permit, since notification was submitted. (This unit has subsequently been removed.)
- EU052 - removed notification requirements from the permit, since notification was submitted. Also changed name [removed “(replaces EU004)”].

- EU054 - removed notification requirements from the permit, since notification was submitted. Also changed name [removed “(replaces EU009)”].
- GP003 – removed EU004 from the group, as this unit has been removed.
- GP004 – removed EU043 and EU051 from the group, since these units have been removed.
- GP005 – removed EU009 from the group, as this unit has been removed.
- GP007 – removed EU004, EU009, EU043, and EU051 from the group, as these units have been removed.

#### **1.4. Facility Emissions:**

No change from previous permit action.

**Table 1. Facility Classification**

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

## **2. Regulatory and/or Statutory Basis (no changes from previous permit action)**

### New Source Review

The permit currently includes federally enforceable conditions such that the facility is a non-major source under New Source Review. The proposed modification does not result in emissions greater than the NSR significant increase thresholds.

### Part 70 Permit Program

The facility is a non-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 pt. 63. Thus, no NESHAPs apply.

### Minnesota State Rules

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

- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

## **3. Technical Information**

### **3.1 Permit Organization**

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

### **4. Conclusion**

Based on the information provided by Northern Castings Corporation, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700082-003 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:      Toni Volkmeier (permit writer/engineer)  
   Bob Beresford (enforcement)  
   Dan Sullivan (peer reviewer)

Attachments:      1. Facility Description and CD-01 Forms