

217/782-2113

CONSTRUCTION PERMIT - REVISED

PERMITTEE

Caterpillar Inc. - Mapleton Foundry
Attn: Dennis Riehl
8826 West Route 24
Mapleton, Illinois 61547

Application No.: 06020017 I.D. No.: 143805AAB
Applicant's Designation: Casting Area Date Received: August 26, 2009
Construction of: Modifications of Large Casting Area
Date Issued: July 30, 2010
Source Location: 8826 West Route 24, Mapleton

This Permit is hereby granted to the above-designated Permittee to CONSTRUCT emissions source(s) and/or air pollution control equipment consisting of modifications to the Large Casting Area, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Large Casting Area

1.1. Description

This permit authorizes various changes to the Large Casting Area formerly Molding and Casting Lines 7 and 7b. This area produces large iron castings for both internal customers, i.e., other caterpillar plants, and for external customers. Caterpillar has made a series of changes to this area to enhance flexibility and be able to respond to changing markets for large castings.

This revised permit merges requirements for Line 7 and 7b which were covered separately in previous permits, to address a single department, the Large Casting Area. The Large Casting Area now has overall production and emission limits governing the combined processes. This revised permit also addresses the construction of new dust control equipment on the mobile sand system. It also provides additional time to commence construction of the natural gas-fired core wash dryer.

1.2. List of Emission Units and Emission Control Equipment

Emission Unit ID	Emission Unit	Emission Control Equipment
EU-305a, Eu305mb	Continuous Resin Bonded Sand Mixers	-
EU-310, Eu-310b	Mold/Core Wash	-
EU-315a	Natural Gas Fired Mold Drying	-
EU-315m	Electric Mold Drying Oven	-
EU-325b	Mobile Resin Bonded Sand Mixer	Dust Collector
EU 335m	Shake Out and Shot Blast	Baghouse
EU F50, EU F50b	Metal Pouring and Cooling	-
EU F85	Stationary Sand System(Storage Bin and Transport)	-
EU 45	Mobile Sand System (Storage Bin and Transport)	New Dust Collector
EU F90	Application of Release Agent	-

1.3. Applicability Provisions and Applicable Regulations

- a.
 - i. The "Affected Large Casting Area" for the purpose of this permit, is the department as described in Conditions 1.1 and 1.2.
 - ii. The affected units for the purpose of this permit are the individual emission units in the affected Large Casting Area.
- b. The affected large casting area is subject to 40 CFR 63 Subpart EEEEE, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel foundries, and shall comply with all applicable requirements of the NESHAP on or before April 23, 2007.
- c.
 - i. The affected units are subject to 35 IAC 212.321(a), which provides that the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(a).
 - ii. For purposes of this rule, as applied to the affected large casting area, all affected units served by a single ventilation system, shall be considered similar emission units.
- d. The affected units are subject to 35 IAC 215.301, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lb/hour) of organic material into the atmosphere from any emission unit. Provided however that if no odor

nuisance exists this limitation shall apply only to photochemically reactive material as defined in 35 IAC 211[35 IAC 215.301].

Note: Emissions of organic material in excess of those allowed above would be allowable if such emissions were controlled by flame, thermal or catalytic incineration so as either to reduce such emissions to 10 ppm equivalent methane (molecular weight 16) or less, or to convert 85 percent of the hydrocarbons to carbon dioxide and water [35 IAC 215.302(a)]; or if such emissions controlled by any air pollution control equipment approved by the Illinois EP capable of at least 85 percent reduction of organic material emissions.

- e. The affected units are subject to 35 IAC 214.301, which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm.

1.4. Non-Applicability Provisions

This permit is issued based on the modifications to the large casting area not being a major modification as defined by 40 CFR 52.21, Prevention of Significant Deterioration, PSD. The limits and other requirements of this permit ensure that the modifications as addressed herein do not constitute a major modification. See Attachment 1.

1.5 Operational and Production Limits and Work Practices

- a. i. The operation of the affected large casting area shall not exceed the following limits:

Activity	Limits	
	Monthly	Annually
Metal Poured (Tons) (Including Gray and Magnesium Treated Iron)	2,390	21,500
Natural Gas Usage (Million Cubic Feet)	2.8	25
Usage of VOM-Based Mold Release Agent (Tons)	1.1	8.0

- ii. Compliance with these annual limits and other annual limits in this permit shall be determined a running 12 month total from the sum of the data for the current month plus the preceding 11 months.
- b. The affected large casting area shall be operated and maintained in accordance with good air pollution practice to minimize emissions.

1.6 Emission Limits

- a. Emissions from the affected large casting area shall not exceed the following limits:

Activity	PM		PM ₁₀		PM _{2.5}		VOM		CO	
	Month	Year	Month	Year	Month	Year	Month	Year	Month	Year
Metal Pouring and Cooling	2.95	26.62	2.60	23.50	1.86	16.83	4.41	39.57	5.94	53.43
Natural Gas Usage	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.07	0.11	1.05
Release Agent	-	-	-	-			1.1	10.0		
Sand System and Shot Blasting	1.01	9.01	0.11	0.91	0.11	0.91				
TOTAL	3.97	35.73	2.72	24.51	1.98	17.84	5.52	49.64	6.05	54.48

- b. This permit is issued based on minimal emissions of CO and NOx from the combustion of natural gas in the affected large casting area. For this purpose, emissions of CO and NOx each shall not exceed 0.30 pound/hour and 1.4 tons/year.
- c. This permit is issued based on negligible emissions of SO₂ and NOx from the affected large casting area, other than SO₂ and NOx from combustion of natural gas. For this purpose, emissions of SO₂ and NOx each shall not exceed 0.44 tons/year.

1.7. Testing Requirements

- a. Upon request by the Illinois EPA, the Permittee shall have PM or PM₁₀ emissions from specific affected units measured at its expense by an approved testing service, during conditions representative of maximum operation using approved USEPA test methods and procedures, as specified in the request from the Illinois EPA.

1.8. Inspection and Maintenance Requirements

- a. The Permittee shall follow written procedures for inspection and maintenance for affected units, which procedures shall either be the procedures provided by the manufacturer of the unit or procedures developed and maintained by the Permittee.

1.9. Recordkeeping Requirements

- a. The Permittee shall keep the following records related to VOM emissions:
 - i. Material safety data sheets or other manufacturer data for the resin used in producing cores.
 - ii. Calculations for the VOM emissions associated with use of such resin, with supporting calculations.
- b. The Permittee shall maintain records of the activity and material usage of the affected large casting area as limited by Condition 1.5(a) (tons/month and tons/year).
- c. The Permittee shall keep records of the emissions of PM, PM₁₀ and VOM from the affected large casting area, tons/month and tons/year, with supporting calculations.

1.10. Deviation Reporting

The Permittee shall promptly notify the Illinois EPA of deviations of the affected large casting area with the permit requirements. Reports shall describe the deviations, the probable cause of such deviations, the corrective actions taken, and any preventive measures taken.

1.11. General requirements of the CAAPP permit with respect to retention and availability of records or submission of reports shall apply to recordkeeping and reporting requirements established by this permit. The Permittee is allowed 24 months from the issuance date of this permit to commence construction of the modified large casting area. This condition supersedes Standard Condition 1.

1.12. The Permittee is allowed to operate the affected large casting area under this construction permit until final action is taken on a revision to or renewal of its CAAPP permit.

1.13 Please note this permit authorizes the construction of a natural gas fired core wash dryer for miscellaneous castings.

If you have any questions on this, please call Kevin Smith at 217/782-2113.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:KLS:jws

cc: Region 2

ATTACHMENT 1: EVALUATION OF THE CHANGE IN EMISSIONS WITH THIS PROJECT

Table 1: Past Actual Emissions of Lines 7 and 7b
 Highest two year average,
 Line 7 April 2007 through January 2009
 Line 7b April 2007 through March 2009

Pollutant	Emissions (tons/year)
PM	12.77
PM ₁₀	11.15
PM _{2.5}	8.00
VOM	10.69
CO	25.26
NO _x	0.05
SO _x	0.10

Table 2: Future Potential Emissions of the Affected Large Casting Area

Pollutant	Emissions (tons/year)
PM	35.73
PM ₁₀	24.51
PM _{2.5}	17.84
VOM	49.64
CO	54.48
NO _x	1.36
SO _x	0.22

Table 3: Change in Emissions

Pollutant	Table 1	Table 2	Difference	Significant Emission Rate
PM	12.77	35.73	22.97	25
PM ₁₀	11.15	24.51	13.35	15
PM _{2.5}	8.00	17.84	9.84	10
VOM	10.69	49.64	38.94	40
CO	25.26	54.48	29.22	100
NO _x	0.05	1.36	1.31	40
SO _x	0.10	0.22	0.12	40

KLS:jws