

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Leading Edge Enterprises, LLC
Attn: John Wagner
690 East Kenwood
Decatur, Illinois 62526

<u>Application No.:</u> 06050121	<u>I.D. No.:</u> 115015APQ
<u>Applicant's Designation:</u>	<u>Date Received:</u> May 15, 2006
<u>Subject:</u> Steel and Iron Casting	
<u>Date Issued:</u> June 22, 2007	<u>Expiration Date:</u> June 22, 2012
<u>Location:</u> 690 East Kenwood, Decatur, Macon County	

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

Induction Furnace (Steel and Iron Production) Controlled by Baghouse BH-1
Magnesium Treatment controlled by Baghouse BH-1
Pouring and Cooling Area (Manganese Steel)
Mold Production (Chemically Bonded/No Bake) Controlled by Baghouse BH-5
Sand Reclaim (Steel) controlled by Baghouse BH-5
Natural Gas-Fired Heat Treating Furnace (Steel)
Greensand Mold and Sand System (Bond Silo, Virgin Sand Silo, and Bond Silo)
Controlled by Bin Vent Filters and Baghouse BH-8
Pouring and Cooling Area (Ductile Iron)
Shakeout (Iron) controlled by Baghouse BH-8
Fabricated Metal Paint Booth Controlled by Dry Filters

pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued:
 - i. To limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for CO, PM₁₀, and VOM and 10 tons/year for a single HAP and 25 tons/year of any combination of such HAPs). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
 - ii. This permit is issued based upon the source not being subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Surface Coating of Miscellaneous Metal Parts and Products, 40 CFR 63 Subpart Mmmm. This is consequence of the federally enforceable production and operating limitations, which restrict the potential to emit to less than 10 tons/year for any individual Hazardous Air Pollutant (HAP) and 25 tons/year of any combination of such HAPs.

- iii. This permit is issued based upon the source not being subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Iron and Steel Foundries, 40 CFR Part 63, Subpart EEEEE. This is consequence of the federally enforceable production and operating limitations, which restrict a potential to emit to less than 10 tons/year for any individual Hazardous Air Pollutant (HAP), and 25 tons/year of any combination of such HAPs.
 - b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
 - c. This permit supersedes all operating permits issued for this location.
- 2a. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 Ill. Adm. Code 212.122, pursuant to 35 Ill. Adm. Code 212.123(a), except as allowed by 35 Ill. Adm. Code 212.123(b) and 212.124
- b. No person shall cause or allow the emission of fugitive particulate matter from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour), pursuant to 35 Ill. Adm. Code 212.301 and 212.314.
 - c. Pursuant to 35 Ill. Adm. Code 212.309(a), the emission units described in 35 Ill. Adm. Code 212.304 through 212.308 shall be operated under the provisions of an operating program, consistent with the requirements set forth in 35 Ill. Adm. Code 212.310 and 212.312, and prepared by the owner or operator and submitted to the Illinois EPA for its review. Such operating program shall be designed to significantly reduce fugitive particulate matter emissions.
- i. All normal traffic pattern access areas surrounding storage piles specified in 35 Ill. Adm. Code 212.304 and all normal traffic pattern roads and parking facilities which are located on mining or manufacturing property shall be paved or treated with water, oils or chemical dust suppressants. All paved areas shall be cleaned on a regular basis. All areas treated with water, oils or chemical dust suppressants shall have the treatment applied on a regular basis, as needed, in accordance with the operating program required by 35 Ill. Adm. Code 212.309, 212.310 and 212.312.
 - ii. All unloading and transporting operations of materials collected by pollution control equipment shall be enclosed or shall utilize spraying, pelletizing, screw conveying or other equivalent methods, pursuant to 35 Ill. Adm. Code 212.307.

- iii. Crushers, grinding mills, screening operations, bucket elevators, conveyor transfer points, conveyors, bagging operations, storage bins and fine product truck and railcar loading operations shall be sprayed with water or a surfactant solution, utilize choke-feeding or be treated by an equivalent method in accordance with an operating program, pursuant to 35 Ill. Adm. Code 212.308.
- d. Pursuant to 35 Ill. Adm. Code 212.310, as a minimum the operating program shall include the following:
 - i. The name and address of the source;
 - ii. The name and address of the owner or operator responsible for execution of the operating program;
 - iii. A map or diagram of the source showing approximate locations of storage piles, conveyor loading operations, normal traffic pattern access areas surrounding storage piles and all normal traffic patterns within the source;
 - iv. Location of unloading and transporting operations with pollution control equipment;
 - v. A detailed description of the best management practices utilized to achieve compliance with this Subpart, including an engineering specification of particulate collection equipment, application systems for water, oil, chemicals and dust suppressants utilized and equivalent methods utilized;
 - vi. Estimated frequency of application of dust suppressants by location of materials; and
 - vii. Such other information as may be necessary to facilitate the Illinois EPA's review of the operating program.
- e. Pursuant to 35 Ill. Adm. Code 212.321(a), no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, 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 Ill. Adm. Code 212.321(c).
- 3. No person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm, pursuant to 35 Ill. Adm. Code 214.301.
- 4a. Pursuant to 35 Ill. Adm. Code 215.206(a)(2), the limitations of 35 Ill. Adm. Code 215 Subpart F (Coating Operations) shall not apply to coating plants in which the total coating usage does not exceed 9,463 liters/year (2,500 gallons/year).

- b. Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission source, except as provided in 35 Ill. Adm. Code 215.302, 215.303, 215.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 215 Subpart K shall apply only to photochemically reactive material.
- c. In the event that the operation of this emission unit results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
- 5a. The dust collectors shall be in operation at all times when the associated emission units are in operation and emitting air contaminants.
- b. The Permittee shall follow good operating practices for the baghouse, including periodic inspection, routine maintenance and prompt repair of defects.
- 6a. Emissions and operation from the iron and steel foundry shall not exceed the following limits:

<u>Equipment</u>	<u>Metal Throughput</u>		<u>Pollutant</u>	<u>Emission</u>	<u>Emissions</u>	
	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>		<u>Factor</u>	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
Induction Furnace	3,504	35,040	PM*	0.045	0.08	0.79
			PM ₁₀	0.043	0.08	0.75
			Pb	0.0005	0.001	0.01
Magnesium Treatment (Ductile Iron)	1,504	15,040	PM	0.09	0.07	0.68
			PM ₁₀	0.09	0.07	0.68
Mold Pouring, Cooling and Shakeout (Steel)	1,900	19,000	PM	4.20	3.99	39.90
			PM ₁₀	2.06	1.96	19.57
			VOM	5.04	4.79	47.88
			CO	5.44	5.17	51.68
			NO _x	0.01	0.01	0.10
			SO ₂	0.02	0.02	0.19
			Phenol	0.843	0.80	8.01
Mold Pouring, and Cooling (Iron)	1,504	15,040	PM	4.20	3.16	31.58
			PM ₁₀	2.06	1.55	15.49
			NO _x	0.01	0.008	0.08
			SO ₂	0.02	0.02	0.15
Mold Shakeout (Iron)	1,504	15,040	PM	0.160	0.12	1.20
			PM ₁₀	0.112	0.08	0.84

<u>Equipment</u>	<u>Metal Throughput</u>		<u>Pollutant</u>	<u>Emission Factor (Lb/Ton)</u>	<u>Emissions</u>	
	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>			<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
Mold Pouring, Cooling and Shakeout (Iron)	1,504	15,040	VOM	1.34	1.01	10.08
			CO	4.50	3.38	33.84
			Phenol	0.0642	0.05	0.48
Sand Reclaim (Steel)	6,000	60,000	PM	0.036	0.11	1.08
			PM ₁₀	0.027	0.08	0.81
Sand System (Iron)	4,512	45,120	PM	0.036	0.08	0.81
			PM ₁₀	0.027	0.06	0.61
PUNB Mold Production (Steel)	6,000	60,000	VOM	0.48	1.44	14.40
			Phenol	0.0127	0.04	0.38
Sand Silo(s) (Iron)	4,512	45,120	PM	0.005	0.011	0.113
			PM ₁₀	0.005	0.011	0.113
Bond Silo(s) (Iron)	677	6,768	PM	0.005	0.002	0.017
			PM ₁₀	0.005	0.002	0.017
Sand Silo (Steel)	6,000	60,000	PM	0.005	0.015	0.15
			PM ₁₀	0.005	0.015	0.15
Paint Usage						
In lbs						
Paint Booth	1,000	10,000	PM	0.08	0.04	0.40
			PM ₁₀	0.08	0.04	0.40
			VOM	0.44	0.22	2.20

These limits are based on representations of the limited production rates, the use of standard emission factors (FIRE, Version 6.25), Casting Emission Reduction Program (CERP) and manufacturer's control efficiencies for the dust collectors.

- b. The maximum potential emissions and operation of natural gas-fired equipment are as follows:

	<u>Natural Gas Usage (mmscf)</u>		<u>Pollutant</u>	<u>Emission Factor (lb/mmscf)</u>	<u>Emissions</u>	
	<u>Monthly</u>	<u>Yearly</u>			<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
Heat Treat (Steel)	5.3	53	PM	1.90	0.005	0.05
			PM ₁₀	7.60	0.020	0.20
			VOM	5.50	0.01	0.14
			CO	84.00	0.22	2.21
			NO _x	100.00	0.26	2.63
			SO ₂	0.60	0.002	0.02

These limits are based on maximum fuel usage and standard emission factors (Section 1.4 of AP-42, Supplement D , July 1998).

- c. This permit is issued based on negligible emissions of particulate matter from each finishing and savage grinding, manual sand blast, and tool making. For this purpose, emissions from each emission unit shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
- d. This permit is issued based on negligible emissions of volatile organic material from each, negligible manual shakeout, water quench, and plastic injection molding. For this purpose, emissions from each emission unit shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
- e. Total annual emissions of the source shall not exceed the following:

Annual Emissions (Tons/Year)						
<u>PM</u>	<u>PM₁₀</u>	<u>VOM</u>	<u>CO</u>	<u>NO_x</u>	<u>SO₂</u>	<u>Phenol</u>
76.77	39.63	74.70	87.73	2.81	0.36	8.87

- f. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not exceed 0.9 tons/month and 9.0 tons/year of any single HAP and 2.25 tons/month and 22.5 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.
- g. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 7a. Pursuant to 35 Ill. Adm. Code 212.107, 212.109, and 212.110, testing for particulate matter emissions shall be performed as follows:
 - i. For both fugitive and nonfugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR part 60, Appendix A, incorporated by reference in 35 Ill. Adm. Code 212.113, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. This Condition shall not apply to 35 Ill. Adm. Code 212.301, pursuant to 35 Ill. Adm. Code 212.107.
 - ii. Except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, incorporated by reference in 35 Ill. Adm. Code 212.113, except

that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged, pursuant to 35 Ill. Adm. Code 212.109.

- iii. Measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm. Code Part 212 shall be conducted in accordance with 40 CFR part 60, Appendix A, Methods 5, 5A, 5D, or 5E, pursuant to 35 Ill. Adm. Code 212.110(a).
 - iv. The volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4, pursuant to 35 Ill. Adm. Code 212.110(b).
 - v. Upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA, pursuant to 35 Ill. Adm. Code 212.110(c).
- b. Testing required by Condition 7(a) shall be performed by a qualified independent testing service.
8. Inspections of the steel and iron foundry and dust collection systems equipment and operations shall be performed as necessary but at least once per week when the emission units associated with the dust collectors are in operation to confirm compliance with the requirements of this permit.
- 9a. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information)

that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

- b. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 IAC Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- c. The Permittee shall maintain records of the following items, and such other items as may be appropriate to allow the Illinois EPA to review compliance with the limits in this permit.
 - i. Records addressing the application of control measures taken pursuant to the operating program required by Condition 3(c) which are used to reduce fugitive particulate matter emissions.
 - ii. Records addressing use of good operating practices for the dust collectors:
 - A. Operating logs for the dust collectors, including operating data (pressure drop or stack condition), daily upon startup;
 - B. Records for periodic inspection of the dust collectors with date, individual performing the inspection, and nature of inspection; and
 - C. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
 - iii. Steel and Iron casting production (tons/month and tons/year);
 - iv. Sand additions (tons/month and tons/year);
 - v. The amount of coating and cleaning solvent usage (gallons/month and gallons/year);

- vi. The VOM and HAP contents of each coating and cleaning solvent (% by weight);
 - vii. The density of the coatings and cleaning solvents (lbs/gallon);
 - viii. Natural gas consumption (mmscf/month and mmscf/year);
 - ix. Monthly and annual single HAPs and combined HAPs emissions from no-bake, green-sand, mold make, paint booth, induction and heat treatment (tons/month, and tons/year with supporting calculations); and
 - x. Monthly and annual PM, PM₁₀, VOM, CO, NO_x, SO₂, Phenol, single HAPs and combined HAPs emissions from the steel and Iron foundry shall be maintained, based on steel and iron casting and the applicable emission factors, with supporting calculations (tons/month and tons/year).
- d. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
- 10a. Pursuant to 35 Ill. Adm. Code 212.11(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
- b. If there is an exceedance of or deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance/deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.
11. Two (2) copies of required reports and notifications shall be sent to:
- Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

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and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control - Region 3
2009 Mall Street
Collinsville, Illinois 62234

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

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

ECB:DLB:psj

cc: IEPA, FOS Region 3
Region 3

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the iron and steel foundry operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels, (e.g., 100 tons per year of particulate matter and volatile organic material, 10 tons per year for a single HAP, and 25 tons per year for totaled HAP, at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)						<u>Single HAP</u>	<u>Combined HAPs</u>
	<u>PM</u>	<u>PM₁₀</u>	<u>VOM</u>	<u>CO</u>	<u>NO_x</u>	<u>SO₂</u>		
Induction Furnace	0.79	0.75					0.01*	
Magnesium Treat (Ductile Iron)	0.68	0.68						
Mold Pouring, Cooling and Shakeout (Steel)	39.90	19.57	47.88	51.68	0.10	0.19	8.01**	
Mold Pouring and Cooling (Iron)	31.58	15.49			0.08	0.15		
Mold Shakeout (Iron)	1.20	0.84						
Mold Pouring Cooling and Shakeout			10.08	33.84			0.48**	
Sand Reclaim (Steel)	1.08	0.81						
Sand System (Iron)	0.81	0.61						
PUNB Mold Production (Steel)			14.40				0.38**	
Sand Silos (Iron)	0.113	0.113						
Bond Silos (Iron)	0.017	0.017						
Sand Silo (Steel)	0.15	0.15						
Paint Booth	0.40	0.40	2.20					
Heat Treat (Steel)	0.05	0.20	0.14	2.21	2.63	0.02		
Total	78.09	39.63	76.02	87.73	2.81	0.36	9.0	22.5

* Lead

** Phenol

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