

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- RENEWAL

PERMITTEE

Spectrulite Consortium, Inc.  
Attn: Craig Rathgeb  
1001 College Street  
Madison, Illinois 62060

Application No.: 72090139  
Applicant's Designation:  
Subject: Aluminum & Magnesium Casting  
Date Issued: January 15, 2003  
Location: 1001 College Street, Madison

I.D. No.: 119105AAH  
Date Received: March 19, 2002  
Expiration Date: January 15, 2008

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of aluminum casting operation (consisting of 2 reverberatory melting furnaces, 2 holding furnaces, homogenizing furnace, north forging oven, south forging oven), a Magnesium Casting Operation (consisting of intermittent caster pot furnace, billet caster pot furnace, slab caster pot furnace, flux cleaning pot furnace), metal chip handling system controlled by a cyclone, fuel combustion sources (consisting of 3 die oven extrusion presses, press container heater, container preheating oven, 3 aging ovens, heat treat furnace, 2 coil anneal furnaces, 2 thermal flatten oven, #1-2 coil wire brush cleaning and #3 sheet wire brush cleaning controlled by 2 wet scrubbers, 2 coil reheat ovens, process anneal oven, 2 slab preheat ovens, 2 boilers, and 58 space heaters), and roadways controlled by water spray system 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 to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 ton/yr PM-10, 100 ton/yr NO<sub>x</sub>, and 100 ton/yr SO<sub>2</sub>). As a result the source is excluded from the requirement 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.
- 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.
2. Normal operation of the aluminum melting process shall be constrained by the following parameters. These parameters shall be incorporated into the written operating procedures for this process.

- a. Working of the molten bath (alloying, drossing, stirring, etc.) shall begin with the bath temperature at or below 1350EF.
  - b. At no time during the batch cycle shall the bath temperature exceed 1550EF.
  - c. Records of operation including the Furnace Log and the Daily Station Report shall be filled out completely and accurately for each batch cycle. These records along with the 24 hour circular chart recording of bath and furnace temperatures shall be kept on file for a period of not less than three (3) years.
3. The following shall be the means of monitoring and control of the aluminum melting process.
- a. The existing strip chart recorder/controller shall be utilized for control of the furnace operation. Control shall be on the molten bath temperature as measured by the existing removable thermocouple arrangement.
  - b. The existing roof high limit thermocouple shall continue to be utilized as the furnace high temperature safety.
  - c. A 3-pen, 24 hour circular chart recorder shall be used to constantly record bath temperature, furnace air temperature and burner firing status. The chart will be retained on file for three (3) years along with the other records of operation.
  - d. Continuous monitoring of the bath temperature will be accomplished through a permanently mounted thermowell in the hearth of the furnace.
  - e. Continuous monitoring of furnace air temperature shall be accomplished through a permanently mounted thermowell adjacent to the existing roof high limit.
  - f. Burner firing status shall be monitored off of the existing burner control system.
4. Total combined operations and emissions from the Aluminum Casting Operation shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Process Rate</u>		<u>PM Emissions</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Alum Reverb Furnace	2,418	28,470	2.42	28.47
Dross Cooling*	242	2,847	0.03	0.31
Alum Holding Furnace	1	8	<u>0.50</u>	<u>4.00</u>
			2.95	32.78

\* Fugitive Emission Source

These limits are based on standard emission factors. Note that limiting PM emissions also limits PM-10 emissions to an equal or lesser quantity. Compliance with annual limits shall be determined from a running total of 12 months of data.

5. Total combined operations and emissions from the Magnesium Casting Operation shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Process Rate</u>		<u>PM Emissions</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Mag Casting Furnaces	2,604	30,660	2.60	30.66
Mag Flux Cleaning Pot Furnace	446	5,256	0.41	4.86

These limits are based on standard emission factors. Note that limiting PM emissions also limits PM-10 emissions to an equal or lesser quantity. Compliance with annual limits shall be determined from a running total of 12 months of data.

6. Total combined operations and emissions from the Metal Chip Handling Operation shall not exceed the following limits:

<u>Process Rate</u> <u>(Lb/Hr)</u>	<u>PM Emissions</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
1,091	0.37	4.40

These limits are based on emission factors as indicated in the application, 95% control efficiency for the cyclone, maximum operating time of 8,760 hr/yr. Note that limiting PM emissions also limits PM-10 emissions to an equal or lesser quantity. Compliance with annual limits shall be determined from a running total of 12 months of data.

- 7a. Total combined operation and emissions from all fuel combustion sources shall not exceed the following limits:

Natural Gas Usage									
<u>(mmft<sup>3</sup>/Month)</u>				<u>(mmft<sup>3</sup>/Year)</u>					
101				1,008					
<u>NO<sub>x</sub> Emissions</u>	<u>SO<sub>2</sub> Emissions</u>	<u>PM Emissions</u>	<u>VOM Emissions</u>	<u>CO Emissions</u>	<u>NO<sub>x</sub> Emissions</u>	<u>SO<sub>2</sub> Emissions</u>	<u>PM Emissions</u>	<u>VOM Emissions</u>	<u>CO Emissions</u>
<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>
5.0	50.4	0.03	0.30	0.38	3.8	0.28	2.8	4.2	42.3

These limits are based on standard emission factors and maximum operating hours of 8,760 hrs/yr. Conversion factors of 1000 Btu/ft<sup>3</sup> and 1 therm/100,000 Btu were used. Note that limiting PM emissions also limits PM-10 emissions to an equal or lesser quantity. Compliance with annual limits shall be determined from a running total of 12 months of data.

- b. Total combined operation and emissions from all fuel combustion sources shall not exceed the following limits:

Fuel Oil Usage									
<u>(Gallon/Month)</u>					<u>(Gallon/Year)</u>				
300,000					960,000				
<u>NO<sub>x</sub> Emissions</u>		<u>SO<sub>2</sub> Emissions</u>		<u>PM Emissions</u>		<u>VOM Emissions</u>		<u>CO Emissions</u>	
<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>
3.0	9.6	6.0	19.1	0.49	1.6	0.05	0.2	0.75	2.4

These limits are based on standard emission factors, maximum operating hours of 8,760 hours/year, and 28% sulfur content for the fuel oil. Note that limiting PM emissions also limits PM-10 emissions to an equal or lesser quantity. Compliance with annual limits shall be determined from a running total of 12 months of data.

8. Total combined operation and emissions from all roadways shall not exceed 0.79 tons/yr of PM-10. These limits are based on standard emission factors and 90% control efficiency of the water spray system.
- 9a. Pursuant to 35 Ill. Adm. Code 212.316 the following emission limitations shall apply:
- i. No person shall cause or allow fugitive particulate matter emissions from any roadway or parking area to exceed an opacity of 10%.
  - ii. Emission Limitation for All Other Sources. No person shall cause or allow fugitive particulate matter emissions from any source to exceed an opacity of 20%.
- b. Pursuant to 35 Ill. Adm. Code 212.458 the following emission limitations shall apply:
- i. No person shall cause or allow emissions of PM-10 into the atmosphere, other than that of fugitive particulate to exceed 0.01 gr/scf for all process emission units during any one hour period.
  - ii. No person shall cause or allow emissions of PM-10 into the atmosphere, other than that of fugitive particulate to exceed 0.02 gr/scf for metal chip handling system during any one hour period.
  - iii. No person shall cause or allow emissions of PM-10 into the atmosphere other than that of fugitive particulate to exceed 0.005 lbs/mmBtu of heat input from the burning of fuel from any process unit.

- iv. No person shall cause or allow emissions of PM-10 into the atmosphere other than that of fugitive particulate to exceed 0.01 gr/scf from dross pad, dross cooling, and dross mixing units.
  - v. No person shall cause or allow emissions of PM-10 into the atmosphere other than that of fugitive particulate to exceed 0.03 lbs/mmBtu of heat input from any fuel combustion emission unit that heats air for space heating purposes.
  - vi. No person shall cause or allow emissions of PM-10 into the atmosphere other than that of fugitive particulate to exceed 0.03 gr/scf from any holding furnace.
  - vii. North and south melting furnaces cannot be operated simultaneously.
  - viii. Magnesium pot furnaces can be operated no more than two lines at a time.
  - ix. No person shall cause or allow emissions of PM-10 into the atmosphere other than that of fugitive particulate to exceed 0.005 lbs/mmBtu of heat input from any fuel combustion emission unit, except as provided in v. above.
10. This permit is issued based on negligible emissions of PM-10 from #1-2 coil wire brush cleaning and #3 sheet wire brush cleaning operation controlled by 2 wet scrubbers. For this purpose, emissions from each emission source shall not exceed nominal rates of 0.1 lb/hr and 0.44 ton/yr.
- 11a. The Permittee shall keep records of the following item(s) on at least a monthly basis:
- i. Process rates for all processes (tons/mo and ton/yr).
  - ii. Fuel Usage: Natural Gas (mmscf/yr) and #2 Fuel Oil (gal/yr).
  - iii. Emissions calculations (tons/mo and tons/yr).
- b. The Permittee shall maintain written records of the application of control measures as may be needed for compliance with the opacity limitations of 35 Ill. Adm. Code. 212.316 and shall submit to the Illinois EPA an annual report, along with the Annual Emission Report, containing a summary of such information.
- i. The records required shall include at least the following:
    - A. The name and address of the plant;
    - B. The name and address of the owner and/or operator of the plant;

- C. A map or diagram showing the location of all emission sources controlled including the location, identification, length, and width of roadways;
  - D. For each application of water or chemical solution to roadways by truck: the name and location of the roadway controlled, application rate of each truck, frequency of each application, width of each application, identification of each truck used, total quantity of water or chemical used for each application and, for each application of chemical solution, the concentration and identity of the chemical;
  - E. For application of physical or chemical control agents: the name of the agent, application rate and frequency, and total quantity of agent and, if diluted, percent of concentration, used each day; and
  - F. A log recording incidents when control measures were not used and a statement of explanation.
- ii. Copies of all records required by this Section shall be submitted to the Illinois EPA or USEPA within ten (10) working days after a written request by the Illinois EPA or USEPA and shall be transmitted to the Illinois EPA or USEPA by a company-designated person with authority to release such records.
  - iii. A quarterly report shall be submitted to the Illinois EPA stating the following: the dates any necessary control measures were not implemented, a listing of those control measures, the reasons that the control measures were not implemented, and any corrective actions taken. This information includes, but is not limited to, those dates when controls were not applied based on a belief that application of such control measures would have been unreasonable given prevailing atmospheric conditions, which shall constitute a defense to the requirements of this Section. This report shall be submitted to the Illinois EPA 30 calendar days from the end of a quarter. Quarters end March 31, June 30, September 30, and December 31.
- c. The Permittee shall maintain and repair all air pollution control equipment in a manner that assures that the emission limits and standards are met at all times. Proper maintenance shall include the following minimum requirements:
    - i. Visual inspections of air pollution control equipment;
    - ii. Maintenance of an adequate inventory of spare parts; and
    - iii. Expeditious repairs, unless the emission unit is shutdown.
    - iv. The Permittee shall maintain written records of maintenance and repairs including the following:

- A. Inventory and documentation of inspections, maintenance, and repairs of all air pollution control equipment.
  - B. The owner or operator shall document any period during which any process emission unit was in operation when the air pollution control equipment was not in operation or was malfunctioning so as to cause an emissions level in excess of the emission limitations. These records shall include causes and corrective actions taken.
  - C. Inventory of all spare parts not readily available from local suppliers shall be kept an updated.
- v. Copies of all records required by this Section shall be submitted to the Illinois EPA or USEPA within ten (10) working days after a written request by the Illinois EPA or USEPA.
- d. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three 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 respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
12. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA or USEPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. 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 violation and efforts to reduce emissions and future occurrences.
- 13a. Emissions shall be measured during conditions which are representative of maximum emissions to demonstrate compliance with emission limits above within 90 days of an Illinois EPA request.
- b. The Permittee shall notify the Illinois EPA in writing 30 days in advance of conducting such testing to allow the Illinois EPA to be present.
  - c. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A and 40 CFR 61, Appendix B for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow and Velocity	USEPA Method 2
Particulate and PM-10	USEPA Method 6B

14. Copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized.
  - a. A summary of results.
  - b. General information.
  - c. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule.
  - d. Detailed description of test conditions, including:
    - i. Process information, i.e., mode(s) of operation, process rate, e.g. fuel or raw material consumption;
    - ii. Control equipment information, i.e., equipment condition and operating parameters during testing; and
    - iii. A discussion of any preparatory actions taken, i.e., inspections, maintenance and repair.
  - e. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
  - f. An explanation of any discrepancies among individual tests or anomalous data.
  - g. A declaration that all tests needed to demonstrate compliance with emission limitations have been properly performed.
15. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Section (#40)  
1340 North Ninth Street  
P.O. Box 19276  
Springfield, Illinois 62794-9276

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  
2009 Mall Street  
Collinsville, Illinois 62234

Please note that a contingency measure plan must be submitted pursuant to 35 Ill. Adm. code 212 Subpart U.

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It should be noted that this permit is revised to not include the batch vapor degreaser.

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

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:JPB:jar

cc: Illinois EPA, FOS Region 3  
Illinois EPA, Compliance Section  
USEPA - Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the Aluminum and Magnesium Casting Facility 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 ton/yr PM-10, 100 ton/yr NO<sub>x</sub>, and 100 ton/yr SO<sub>2</sub>, at which this source would be considered a major source for purposes of the Clean Air Act Permit Program.

1. Total combined operations and emissions from the Aluminum Casting Operation shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Process Rate</u>		<u>PM Emissions</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Alum Reverb Furnace	2,418	28,470	2.42	28.47
Dross Cooling	242	2,847	0.03	0.31
Alum Holding Furnace	1	8	0.50	4.00

2. Total combined operations and emissions from the Magnesium Casting Operation shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Process Rate</u>		<u>PM Emissions</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Casting Furnaces	2,604	30,660	2.60	30.66
Mag Flux Cleaning Pot Furnace	446	5,256	0.41	4.86

3. Total combined operations and emissions from the Metal Chip Handling Operation shall not exceed the following limits:

<u>Process Rate</u>	<u>PM Emissions</u>	
	<u>(Lb/Hr)</u>	<u>(Tons/Mo)(Tons/Yr)</u>
1,091	0.37    4.40	

- 4a. Total combined operation and emissions from all fuel combustion sources shall not exceed the following limits:

Natural Gas Usage										
<u>(mmft<sup>3</sup>/Month)</u>					<u>(mmft<sup>3</sup>/Year)</u>					
101					1,008					
<u>NO<sub>x</sub> Emissions</u>	<u>SO<sub>2</sub> Emissions</u>	<u>PM Emissions</u>	<u>VOM Emissions</u>	<u>CO Emissions</u>	<u>NO<sub>x</sub> Emissions</u>	<u>SO<sub>2</sub> Emissions</u>	<u>PM Emissions</u>	<u>VOM Emissions</u>	<u>CO Emissions</u>	
<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>
5.0	50.4	0.03	0.3	0.38	3.8	0.28	2.8	4.2	42.3	

- b. Total combined operation and emissions from all fuel combustion sources shall not exceed the following limits:

Fuel Oil Usage									
<u>(Gallon/Month)</u>				<u>(Gallon/Year)</u>					
300,000				960,000					
<u>NO<sub>x</sub> Emissions</u>		<u>SO<sub>2</sub> Emissions</u>		<u>PM Emissions</u>		<u>VOM Emissions</u>		<u>CO Emissions</u>	
<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>
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These limits are based on standard emission factors, maximum operating hours of 8,760 hours/year, and 28% sulfur content for the fuel oil. Note that limiting PM emissions also limits PM-10 emissions to an equal or lesser quantity. Compliance with annual limits shall be determined from a running total of 12 months of data.

5. Total combined operation and emissions from all roadways shall not exceed 0.79 tons/yr of PM-10. These limits are based on standard emission factors and 90% control efficiency of the water spray system.
6. This permit is issued based on negligible emissions of PM-10 from #1-2 coil wire brush cleaning and #3 sheet wire cleaning operation controlled by 2 wet scrubbers. For this purpose, emissions from each emission source shall not exceed nominal rates of 0.1 lb/hr and 0.44 ton/yr.

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