

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

April 18, 2011

PERMIT TO INSTALL
43-06A

ISSUED TO
Bay Carbon, Inc.

LOCATED AT
800 Marquette Street
Bay City, Michigan

IN THE COUNTY OF
Bay

STATE REGISTRATION NUMBER
N1832

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

March 24, 2011

DATE PERMIT TO INSTALL APPROVED:

April 18, 2011

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO ₂	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EU-01	Graphite Impregnation Process, Building "B". Process equipment is various electric industrial furnaces which are heated to 1700 degrees Celsius. This process impregnates the graphite pieces with silicon carbide through heating and volatilization of silicon dioxide.	FGPROCESSES
EU-02	Graphite Purification process, Building "C". Process equipment consists of various electrically heated furnaces. These furnaces are controlled by one of the two wet alkaline scrubber units.	FGPROCESSES
EU-03	Silicon Carbide Coating Process, Building "F". Process equipment consists of industrial bell jars and electrical heat coils. This process coats the parts with a very thin layer of silicon carbide which occurs through the heating of the parts and a chemical reaction taking place.	FGPROCESSES
EU-04	Graphite Machining Process, Building "D". Process equipment consists of various types of industrial lathes, band saws and drill presses. This equipment is vented to a baghouse.	FGPROCESSES

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGGRPHPROCESSES	Machining, purification, coating and impregnated graphite production processes (Buildings B, C, D and F)	EU-01, EU-02, EU-03, EU-04

The following conditions apply to: FGGRPHPROCESSES

DESCRIPTION: Machining, purification, coating and impregnated graphite production processes (Buildings B, C, D and F)

Emission Units: EU-01, EU-02, EU-03, EU-04

POLLUTION CONTROL EQUIPMENT: Graphite Purification process (EU-02), Building "C" furnaces are controlled by one of the two wet alkaline scrubber units and the Graphite Machining Process (EU-04), Building "D" is vented to a baghouse.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

1. The permittee shall not use more than 5,300 pounds of chlorine in FGGRPHPROCESSES per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1224, R 336.1225)**
2. The permittee shall not use more than 3,000 pounds of dimethyldichlorosilane in FGGRPHPROCESSES per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1224, R 336.1225)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate any of the furnaces in EU-02 unless an acceptable preventative maintenance (PM) plan for the two alkaline scrubber systems has been submitted to the AQD District Supervisor for review and approval within 30 days of permit issuance, and is implemented and maintained. The plan shall include the proper pH operating level and liquid flow rate for each of the scrubber systems as specified by the manufacturer. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall not operate any of the graphite machining processes in EU-04 unless an acceptable preventative maintenance (PM) plan for the baghouse has been submitted to the AQD District Supervisor for review and approval within 30 days of permit issuance, and is implemented and maintained. The plan shall include the manufacturer's recommended pressure drop for the baghouse along with the manufacturer's recommended timeframe for changing the collection sacks. **(R 336.1331, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate any of the electric furnaces in EU-02 unless the associated wet alkaline scrubber is installed, maintained, and operated in a satisfactory manner, pursuant to manufacturer's specifications. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the pH and the liquid flow rate of each wet alkaline scrubber in EU-02 on a daily basis. **(R 336.1224, R 336.1225, R 336.1910)**
3. The permittee shall not operate any of the graphite machining processes in EU-04 unless the baghouse is installed, maintained, and operated in a satisfactory manner. **(R 336.1331, R 336.1910)**
4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the pressure drop across the baghouse in EU-04 on a daily basis. **(R 336.1331, R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall monitor and record the pH level and the liquid flow rate for each wet alkaline scrubber in EU-02 on a daily basis. **(R 336.1224, R 336.1225, R 336.1910)**
2. The permittee shall monitor and record the pressure drop across the baghouse in EU-04 on a daily basis. **(R 336.1331, R 336.1910)**
3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period records, as determined at the end of each calendar month, of the amount of chlorine used in FGGRPHPROCESSES, as required by SC II.1. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1910)**
4. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period records, as determined at the end of each calendar month, of the amount of dimethyldichlorosilane used in FGGRPHPROCESSES, as required by SC II.2. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1910)**
5. The permittee shall maintain a log of all maintenance activities conducted according to the preventative maintenance plans required pursuant to SC III.1 and III.2. The permittee shall keep this log on file at the facility and make it available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1910, R 336.1911)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).