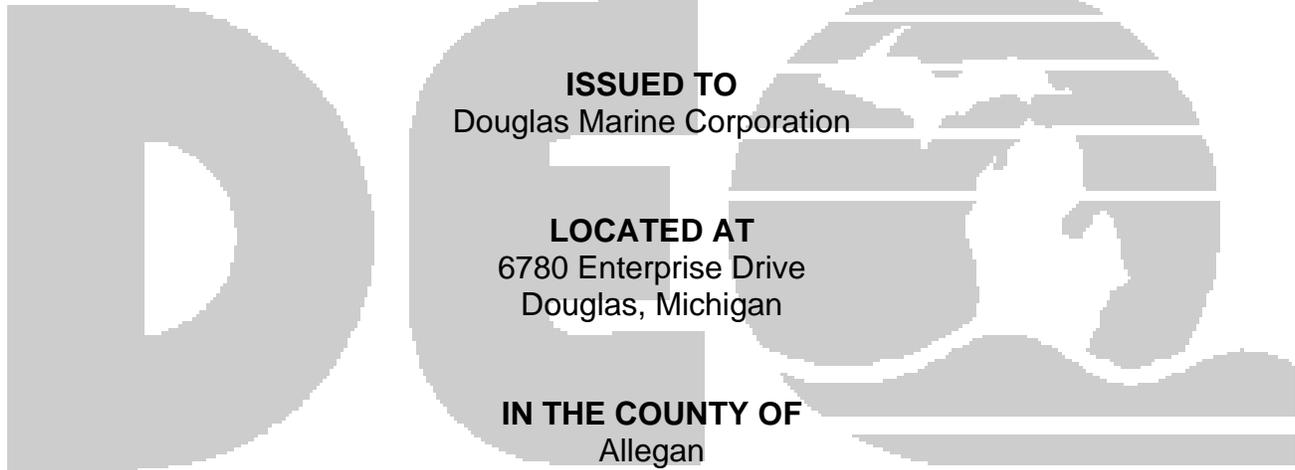


**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

May 9, 2005

**NEW SOURCE REVIEW PERMIT TO INSTALL
69-86B**



ISSUED TO
Douglas Marine Corporation

LOCATED AT
6780 Enterprise Drive
Douglas, Michigan

IN THE COUNTY OF
Allegan

STATE REGISTRATION NUMBER
N1263

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 Part 5505(1) of Article II, Chapter I, Part 55 (Air Pollution Control) of P.A. 451 of 1994. 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: April 28, 2005	
DATE PERMIT TO INSTALL APPROVED: May 9, 2005	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
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
EPA	Environmental Protection Agency	gr	Grains
EU	Emission Unit	Hg	Mercury
FG	Flexible Group	hr	Hour
FRP	Fiberglass Reinforced Plastic	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	NO _x	Oxides of Nitrogen
MMA	Methyl Methacrylate	PM	Particulate Matter
MAP	Malfunction Abatement Plan	PM-10	Particulate Matter less than 10 microns diameter
MDEQ	Michigan Department of Environmental Quality	pph	Pound per hour
MSDS	Material Safety Data Sheet	ppm	Parts per million
NESHAP	National Emission Standard for Hazardous Air Pollutants	ppmv	Parts per million by volume
NSPS	New Source Performance Standards	ppmw	Parts per million by weight
NSR	New Source Review	psia	Pounds per square inch absolute
PS	Performance Specification	psig	Pounds per square inch gauge
PSD	Prevention of Significant Deterioration	scf	Standard cubic feet
PTE	Permanent Total Enclosure	sec	Seconds
PTI	Permit to Install	SO ₂	Sulfur Dioxide
RACT	Reasonable Available Control Technology	THC	Total Hydrocarbons
ROP	Renewable Operating Permit	tpy	Tons per year
RTM	Resin Transfer Molding	µg	Microgram
SC	Special Condition Number	VOC	Volatile Organic Compounds
SCR	Selective Catalytic Reduction	yr	Year
SRN	State Registration Number		
TAC	Toxic Air Contaminant		
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. **[R336.1201(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, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **[R336.1201(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 R336.1210, 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. **[R336.1201(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. **[R336.1201(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 R336.1219 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 R336.1219. The written request shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **[R336.1219]**
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. **[R336.1901]**
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). **[R336.1912]**
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 R336.1301, 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 R336.1303. **[R336.1301]**
 - 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 R336.1370(2). **[R336.1370]**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001. **[R336.2001]**

SPECIAL CONDITIONS

Emission Unit Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EULAMINATION	Lamination process using vacuum bagging technology with production resins and curing agent for the manufacturing of boat parts. The boat molds are made with tooling resins using non-atomized applicators.	SV-LAMINATION1 SV-LAMINATION2
EUGELCOAT	One dry filter spray booth and atomized applicators used to apply gelcoat materials to the mold(s).	SV-GELCOAT
EUMISCMATERIALS	Other materials used in the boat manufacturing process which are NOT resins, gelcoats or curing agents. May include mold release, waxes, sealers, etc.	NA
EUCLEANUP	Miscellaneous cleanup activities using acetone	NA
Changes to the equipment described in this table are subject to the requirements of R336.1201, except as allowed by R336.1278 to R336.1290.		

Flexible Group Identification

Flexible Group ID	Emission Units Included in Flexible Group	Stack Identification
FGFIBERGLASS	EULAMINATION, EUGELCOAT, EUMISCMATERIALS	NA
FGFACILITY	All process equipment at the stationary source including equipment covered by other permits, grand-fathered equipment and exempt equipment.	NA

The following conditions apply to: EUCLEANUP

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirements
1.1a	Acetone	EUCLEANUP	37.0 tpy	12-month rolling time period as determined at the end of each calendar month	SC 1.3	R336.1224

Recordkeeping/Reporting/Notification

1.2 All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. [R336.1224]

1.3 The permittee shall keep the following information on a monthly basis for EUCLEANUP:

- a) The identity of each clean-up solvent used
- b) The amount (in gallons or pounds) of each clean-up solvent used

- c) Where applicable, gallons or pounds of each clean-up solvent reclaimed
- d) Acetone emission calculations determining the monthly emission rate in tons per calendar month, and the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The records shall be kept in a format acceptable to the AQD District Supervisor. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1224]**

The following conditions apply to: FGFIBERGLASS

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirements
2.1a	VOC	FGFIBERGLASS	7.2 tpy	12-month rolling time period as determined at the end of each calendar month	SC 2.12	R336.1225, R336.1702(a)
The emission limits are based upon the emission factors in Special Condition No. 2.2a-c.						

	Material	Application Method	Emission Factor (lb emitted per lb material applied)
2.2a	Production Resin	Manual w/ Vacuum bagging w/ rollout	0.126 x %HAP ¹ x 0.8 (refer to Appendix A)
2.2b	Tooling Resin	Non Atomized	0.059 (refer to Appendix B)
2.2c	DBF Filler	Manual	0.038 (refer to Appendix B)
¹ Input %HAP as a decimal for production resin with vacuum bagging. Refer to the Unified Emission Factor (UEF) Table in Appendix B for further information. [R336.1225, R336.1702(a)]			

Material Usage Limits

- 2.3 The VOC content of the production resins used in FGFIBERGLASS shall not exceed 4.0 percent by weight. **[R336.1224, R336.1225, R336.1702(a)]**
- 2.4 The VOC content of the tooling resins used in FGFIBERGLASS shall not exceed 48 percent by weight. **[R336.1225, R336.1702(a)]**
- 2.5 The permittee shall not exceed the monomer content limits listed in the following table for gelcoat materials used in FGFIBERGLASS in order to demonstrate compliance with Special Conditions 2.1a. **[R336.1225, R336.1702(a)]**

	Material Category	Application Method	Styrene Content (wt %)	MMA Content (wt %)	Styrene Emission Factor (lb emitted per lb material applied)	MMA Emission Factor (lb emitted per lb material applied)
2.5a	White Gelcoat	Atomized	31	5	0.138	0.038

	Material Category	Application Method	Styrene Content (wt %)	MMA Content (wt %)	Styrene Emission Factor (lb emitted per lb material applied)	MMA Emission Factor (lb emitted per lb material applied)
2.5b	Clear Gelcoat	Atomized	43	7	0.251	0.053
2.5c	Tooling Gelcoat	Atomized	48	5	0.303	0.038
The emission factors listed are for the worst case styrene and MMA content gelcoat for each material category. The emission factors will vary depending on the styrene and MMA contents of the gelcoats. Refer to the Unified Emission Factor (UEF) Table in Appendix B for further information. [R336.1225, R336.1702(a)]						

Process/Operational Limits

2.6 All waste cleanup solvent(s), catalyst(s), resin(s), gelcoat(s) and other materials used in FGFIBERGLASS shall be captured and stored in closed containers and disposed of in an acceptable manner in compliance with all applicable state rules and federal regulations. **[R336.1224, R336.1702(a)]**

Equipment

2.7 The permittee shall equip and maintain the lamination portion of FGFIBERGLASS with non-atomized applicators or technology with equivalent or lower styrene emission rates for the application of tooling resins. **[R336.1225, R336.1702(a)]**

2.8 The permittee shall equip and maintain the lamination portion of FGFIBERGLASS with vacuum bagging technology for the use of production resins. **[R336.1225, R336.1702(a)]**

Recordkeeping/Reporting/Notification

2.9 All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **[R336.1225, R336.1702(a)]**

2.10 The permittee shall keep a separate record of the monomer and VOC content for each shipment of resin, gelcoat, curing agent and filler received. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1225, R336.1702(a)]**

2.11 The permittee shall maintain a current listing from the manufacturer of the chemical composition of each material (i.e lamination resin, gelcoat, catalyst, etc.), including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1224, R336.1225, R336.1702(a)]**

2.12 The permittee shall keep the following information for each calendar month for FGFIBERGLASS:

- a) The identity and amount (in pounds) of each material used (resin, gelcoat, curing agent, filler).
- b) The styrene, MMA and/or VOC content of each material used, as applicable.
- c) The appropriate emission factor for each raw material used

- d) VOC emission calculations determining the monthly emission rate in tons per calendar month, and the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month.

The records shall be kept in the format according to Appendix A, or an alternate method acceptable to the AQD District Supervisor. All records shall be kept on file for a period of at least five years and made available to the Department upon request. [R336.1225, R336.1702(a)]

Stack/Vent Restrictions

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Applicable Requirements
2.13a	SV-LAMINATION1	24	20	R336.1225, R336.1901, 40 CFR 52.21(c) and (d)
2.13b	SV-LAMINATION2	24	20	R336.1225, R336.1901, 40 CFR 52.21(c) and (d)
2.13c	SV-GELCOAT	36	32	R336.1225, R336.1901, 40 CFR 52.21(c) and (d)
The exhaust gases shall be discharged vertically upwards to the ambient air.				

Appendix A

Production Resin:

Material Name:	Shell Epon 962 Epoxy Resin				
	A	B	C = 0.126 x %H x 0.8	D	E = D x C
Compound & CAS No.	Wt. %	Application Method	Emission Factor (lb/lb)	Monthly Usage (lb/mo.)	VOC Emissions (lb/mo):
Phenol (H ¹) (108-95-2)	1.0	Vacuum bagging w/ rollout	0.0010		
Formaldehyde (H ¹) (50-00-0)	0.1	Vacuum bagging w/ rollout	0.00010		
Glycidyl ether (2238-07-5)	1.0	Vacuum bagging w/ rollout	0.800		
Bisphenol F (2467-02-9)	1.0	Vacuum bagging w/ rollout	0.800		
Epichlorohydrin (H ¹) (106-89-8)	0.005	Vacuum bagging w/ rollout	0.000005		
Total Lbs. VOC Emitted per Month from Resin, F = (sum of all E's)				F=	
H ¹ = Hazardous Air Pollutant, HAP					

Curing Agent (mixed with Shell Epon Resin):

Material Name:	Ancamine 1784 Curing Agent				
	G	H	I	J	K = J x I x (G/100)
Compound and CAS No.	Wt. %	Application Method	Emission Factor (lb/lb)	Monthly Usage (lb/mo.)	VOC Emissions (lb/mo):
Nonylphenol (25154-52-3)	40	Vacuum bagging w/ rollout	0.800		
Total Lbs. VOC Emitted per Month from Curing Agent, L = (sum of all K's)				L=	

Gelcoat ID: _____

Styrene Content (% wt) _____

MMA Content (%wt) _____

M	N	O	P = M x N	Q = M x O	R = P + Q
Gelcoat Usage (lb/mo)	Styrene Emission Factor (lb. emitted/lb. gelcoat applied)	MMA Emission Factor (lb. emitted/lb. gelcoat applied)	Calendar Month Styrene Emissions (lb/mo)	Calendar Month MMA Emissions (lb/mo)	Calendar Month VOC emissions (lb/mo)
Total Lbs. VOC Emitted per Calendar Month from Gelcoat, S = (sum of all R's)				S =	

Flexible Group (FGFIBERGLASS) Totals:

Flexible Group Tons VOC Emitted per Calendar Month, T = (F + L + S) / 2000	T=	
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Appendix B

Unified Emission Factor Table