

**Morris Yachts, Inc.
Hancock County
Trenton, Maine
A-824-71-B-R (SM)**

**Departmental
Findings of Fact and Order
Air Emission License**

After review of the air emissions license renewal application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Morris Yachts, Inc. (MY) of Trenton, Maine has applied to renew their Air Emission License, permitting the operation of emission sources associated with their boat manufacturing facility.

B. Emission Equipment

MY is authorized to operate the following air emission units:

Process Equipment

Emission Unit	Type of Equip.	Pollutants	Unit Type
Composite Fabrication	Spray guns and bagging technology	Fugitive VOC	Process Equipment
Assembly	Job shop	Particulate Emissions Fugitive VOC	Process Equipment
Surface Finishing	Spray Guns	Particulate Emissions Fugitive VOC	Process Equipment

C. Application Classification

The application for MY does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of current licensed emission units only and has been processed through Chapter 115 of the Department's regulations. With the HAP emission limits on the process, the facility is licensed below the major source thresholds and is considered a synthetic minor (SM).

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Air Regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Overall Process Description

MY's boat building facility is located on Ramp Road in Trenton, Maine. The boats manufactured at MY are built using primarily gelcoat, fiberglass and resin. Other raw materials include paint, varnish, wood, foam, etc. The facility currently consists of two primary buildings. The main building includes offices, assembly areas, woodworking shop, machine shop, paint and varnish application areas, as well as other assembly and maintenance areas. The fabrication building consists of hull, deck and small parts fabrication areas in addition to a materials storage area.

For licensing purposes, the manufacturing process is divided into two areas: (1) Fabrication Operations (hull, deck and small part lamination and gelcoat application) and (2) Assembly and finishing.

C. Fabrication Operations

The manufacturing of fiberglass boats at MY begins with hull and deck construction. In the molding process, boat parts are built from the outside in using primarily the open contact mold method. The fabrication process consists of the following basic steps:

1. The mold is sprayed with a layer of gelcoat, which hardens and becomes the smooth outside surface.
2. The inside of the hardened gelcoat layer is coated with a "skin coat" of chopped glass fibers and polyester or vinylester resin.
3. Additional layers of fiberglass cloth or chopped glass fibers saturated with resin are added to create the outer laminate.

4. Structural core materials such as balsa wood are set in place and saturated by resin using a bagging process whereby resin is infused into the core materials.
5. The inner laminate is added in a similar manner as the outer laminate.
6. The internal supports and interior taping are added to provide support for equipment such as chain plates and engine mounts.
7. A thin layer of interior gelcoat is added to create a finished surface.

The polyester and vinylester resins that are used in the hull and deck fabrication process at MY contain styrene as a solvent and a cross-linking agent. Gelcoats also contain methyl methacralate (MMA) and styrene. Styrene and MMA are HAPs, of which a fraction evaporates during resin and gelcoat applications and curing. Mixing is done to stir the resin or gelcoat and promoters, fillers, and other additives before being applied. Some HAPs from resin and gelcoat may be emitted during mixing as well as actual application.

Resins and gelcoats containing styrene and MMA are also used to make smaller fiberglass parts. However, the fabrication process may be altered depending on the part and the strength requirements.

D. Assembly & Finishing Operations

Assembly and finishing operations include adhering the deck to the hull, installing equipment including engines, deck hardware, instrument panels, and installing interior items such as living area dividers, doors, fixtures, appliances, and built in furniture. Grinding, sanding, machining, and buffing of fiberglass surfaces and hull molds are performed at this stage. All woodworking and welding is also completed on site at MY. VOC emissions result from the use of glues, putties, resins, cleaning solvents, and occasional touch up/repair work. PM emissions are generated by grinding, buffing, sanding, cutting, etc. and is controlled by internal dust collection systems and do not vent to the ambient air.

MY has several designated areas for varnish and paint application. These include the varnish spray booth and the clean paint room. The varnish room is vented with a large fan in a spray application bay. The exhaust is filtered to control PM emissions that would otherwise pass through the fan to the outside. All paint in the clean paint room is applied by hand. Windows may be opened in this room to provide ventilation as needed.

Varnishing and painting is also performed in other areas. For example, some of the wood to be varnished is fixed on the boats and is varnished in place at various stages in the process. Most varnish and paint applied outside of the varnish area is applied by hand.

E. BPT Summary

MY shall meet the following BPT determinations:

- 1) Continue to use flow-coaters to apply resin when laminating hulls and decks. This application technology will help to minimize VOC and PM emissions;
- 2) Continue to use the bagging technology to laminate core materials in the fabrication of hulls and decks;
- 3) MY shall continue to train its employees and implement a controlled spray program for gelcoat application;
- 4) Continue current research and manufacturing test trials of pollution prevention technologies such as low styrene resins, vapor suppressants and water based or low vapor pressure cleaning solvents. 15% of the resin MY used in calendar year 2000 was low styrene resin;
- 5) Continue to use HVLP spray equipment when feasible, or manual techniques to apply varnish to control VOC emissions;
- 6) Continue to work with its suppliers to identify new varnish and paint alternatives with lower VOC content;
- 7) When feasible, use lower vapor pressure cleanup solvents;
- 8) Continue to research, test and work with suppliers to identify cleanup products;
- 9) Maintain records of chemical usage and emissions facility wide;
- 10) Limit HAP emissions to 9.9 TPY of any individual HAP and 24.9 TPY of total HAPs;
- 11) Practice good housekeeping practices such as storing all materials not in use in containers secured with lids and minimizing waste; and
- 12) Install filters on all forced ventilation points that are adjacent to the spray gun operations.

F. Emission Factors for Styrene and Methy Methacrylate (MMA)

The U.S. Environmental Protection Agency (EPA) refers to the Unified Emission Factor (UEF) Model to estimate styrene and methyl methacrylate emissions from fiberglass application in the boat building process. The model contains emission factors presented in a document published by the Composites Fabricators Association (CFA) entitled "Technical Discussion of the Unified Emission Factors for Open Molding of Composites" and dated July 23, 2001. The UEF model was developed as part of a research effort that merged data and emission equations from independent test programs conducted by the CFA and National Marine Manufacturers Association (NMMA).

The UEF emission data takes into account various factors such as ambient air temperature, gel time, exposed surface area, resin temperatures, and the air velocity across the lamination area. These factors can all influence VOC emissions from fiberglass boat manufacturing operations and as such the UEF emission factors are used as the best estimation currently available for use of actual styrene and methyl methacrylate emissions for all boats and variable environmental conditions.

G. Recordkeeping

As part of BPT for VOCs and HAPs control, MY shall maintain, and make available upon request, a current list of all resins and cleaning materials in use. This list shall provide the necessary data to determine compliance, including:

- a) Resin, catalyst, and cleaning materials in use.
- b) Percent VOC by weight for each resin, and the pounds VOC per gallon of cleaning materials.
- c) The amount and type of resin materials used on a monthly basis
- d) The amount and type of cleaning materials used on a monthly basis

The monthly totals of VOCs and HAPs shall be calculated and tracked on a 12 month rolling total basis. UEF emission factors are used as the best estimation currently available for use to estimate actual styrene and methyl methacrylate emissions. MY shall maintain these records for 6 years and make them available upon request from the DEP.

H. Annual Emissions

The facility has the following annual emissions, based on a 12 month rolling total:

Total Annual Emissions for the Facility
(used to calculate the annual license fee)

<u>Pollutant</u>	<u>Tons/yr</u>
PM	--
PM ₁₀	--
NO _x	--
SO ₂	--
CO	--
VOC	24.9
Single HAP	9.9
Total HAPS	24.9

III. AMBIENT AIR QUALITY ANALYSIS

According to the Maine Regulations Chapter 115, the level of air quality analyses required for a minor source shall be determined on a case-by-case basis. Based on the information available in the file, and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source. Based on the above total facility emissions, MY is below the emissions level required for modeling and monitoring.

ORDER

Based on the above Findings and subject to conditions listed below the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-824-71-B-R subject to the following conditions:

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 MRSA §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [MEDEP Chapter 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an

- extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [MEDEP Chapter 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [MEDEP Chapter 115]
 - (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353. [MEDEP Chapter 115]
 - (6) The license does not convey any property rights of any sort, or any exclusive privilege. [MEDEP Chapter 115]
 - (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [MEDEP Chapter 115]
 - (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [MEDEP Chapter 115]
 - (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [MEDEP Chapter 115]
 - (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [MEDEP Chapter 115]
 - (11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:
 - A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:

1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
 2. pursuant to any other requirement of this license to perform stack testing.
- B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
- C. submit a written report to the Department within thirty (30) days from date of test completion.
- [MEDEP Chapter 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
 - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
 - C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
- [MEDEP Chapter 115]
- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [MEDEP Chapter 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department

within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [MEDEP Chapter 115]

- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [MEDEP Chapter 115]

SPECIFIC CONDITIONS

- (16) MY shall limit individual HAP emissions to 9.9 TPY, total HAP emissions to 24.9 TPY and VOC emissions to 24.9 TPY (all based on a 12 month rolling total), based on chemical purchases as specified in Condition (17) and calculations and emission factors as specified in Condition (18). [MEDEP Chapter 115, BPT]

- (17) To ensure compliance with annual emission limits, MY shall record on a monthly basis raw material purchases (which contain VOC and HAPs), the percent VOC and HAP by weight for each material, and the pounds VOC and HAP per gallon of cleaning materials. The raw materials will be considered used during the month they are purchased. With the exception of styrene and methyl methacrylate emissions from the application of gelcoat, resin, and putties, the following equations will be used to calculate VOC and HAP emissions on a 12 month rolling total basis [MEDEP Chapter 115, BPT]:

$$\text{VOC Emissions} = (\text{Monthly Product Purchases} \times \% \text{VOC}) - (\text{Monthly Hazardous Waste Removed from Site} \times \% \text{VOC})$$

$$\text{HAP Emissions} = (\text{Monthly Product Purchases} \times \% \text{HAP}) - (\text{Monthly Hazardous Waste Removed from Site} \times \% \text{HAP})$$

- (18) MY shall calculate styrene and methyl methacrylate emissions from the application gelcoats, resins, and putties on a 12 month rolling total basis using the Unified Emissions Factor model for open molding of composites. [MEDEP Chapter 115, BPT]

- (19) MY shall develop and implement procedures to promote "good housekeeping" practices (close lids, proper storage open containers, etc.) and ensure that all VOC containing materials are handled properly to minimize emissions. The procedure shall ensure that all VOC containers are properly sealed when not in immediate

- use, and that all VOC containers are handled in a manner to reduce the chance of spills. MY shall conduct and log monthly self-inspections of each area to minimize emissions. [MEDEP Chapter 115, BPT]
- (20) MY shall use the closed-mold method (i.e., bagging technology) to minimize VOC emissions from resin application whenever feasible. [MEDEP Chapter 115, BPT]
- (21) MY shall continue to use flow-coaters to apply resins when laminating hulls and decks to minimize VOC emissions. [MEDEP Chapter 115, BPT]
- (22) MY shall train employees on, and implement a controlled spray program for, gelcoat application. An annual report documenting employee training and the controlled spray program for the previous year shall be available for inspection to the Department by request. [MEDEP Chapter 115, BPT]
- (23) MY shall continue to use HVLP spray equipment, when feasible, or manual techniques to apply varnish to control VOC emissions. [MEDEP Chapter 115, BPT]
- (24) MY shall continue research and manufacturing test trials of pollution prevention technologies (low styrene resins, closed mold systems, low VOC cleanup solvents, etc.). An annual summary documenting the research and test trial results for the previous year shall be available for inspection to the Department by request. [MEDEP Chapter 115, BPT]
- (25) Particulate matter emissions from bag filters shall be limited to 10% opacity based on a 6 minute block average and 5% opacity based on a 6 minute block average for spray booth filters. [MEDEP Chapter 101]
- (26) MY shall properly maintain all dust collection equipment in the facility and make repairs as necessary to prevent or minimize system leakage. Visible emissions from any general process source shall not exceed an opacity of 20% on a 6 minute block average basis, except for no more than 1 six minute block average in a 1 hour period. MY shall perform such housekeeping and clean up as is necessary to prevent or minimize fugitive emissions. MY shall conduct and log monthly self-inspections of each area to minimize emissions. [MEDEP Chapter 101]
- (27) **Air Toxics Emission Statement** [MEDEP Chapter 137]
If MY exceeds the thresholds for HAPs listed in Appendix A of MEDEP Chapter 137 in an inventory year, in accordance with MEDEP Chapter 137 the licensee shall report, no later than July 1, every three years (2008, 2011, 2014, etc.) or as otherwise stated in Chapter 137, the information necessary to accurately update

the State's toxic air pollutants emission inventory in a format prescribed by the Department containing the information required in MEDEP Chapter 137.

Reports and questions on the Air Toxics emissions inventory should be directed to:

Attn: Toxics Inventory Coordinator
Maine DEP
Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017

Phone: (207) 287-2437

- (28) MY shall pay the annual air emission license fee within 30 days of **February 28th** of each year. Pursuant to 38 MRSA §353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for revocation of the license under 38 MRSA §341-D, subsection 3.

DONE AND DATED IN AUGUSTA, MAINE THIS _____ DAY OF _____ 2007.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAVID P. LITTELL, COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: December 5, 2006

Date of application acceptance: December 18, 2006

Date filed with Board of Environmental Protection: _____

This order prepared by Mark. E. Roberts, Bureau of Air Quality