Title V Air Operation Permit Revision
Permit No. 0350003-013-AV

APPLICANT

The applicant for this project is Sea Ray Boats, Inc. The applicant's responsible official and mailing address are: Mr. Dan Goddard, Vice President and General Manager, Sea Ray Boats, Inc., 100 Sea Ray Drive, Flagler Beach, Florida 32136.

FACILITY DESCRIPTION

Sea Ray Boats, Inc. is an existing fiberglass boat manufacturing facility involving Lamination, Fabrication and Assembly processes that include the following:

- Gel coating & open molding resin operations
- Closed molding resin operations
- Carpet and fabric adhesive applications
- Adhesive applications of bonding parts, structural adhesive applications
- Hole cutting, trimming, and grinding of reinforced fiberglass parts
- Sawing, routing and fabricating of wood and plastic components
- Resin storage tanks
- Foam operations
- Solvents for surface wipe down, cleaning & flushing of application equipment
- surface coating and painting
- boat cleaning mold making and repairing, mold prepping
- parts repairing, and boat assembly stations

The "contact open molding" method consists of applying layers of impregnated fiberglass reinforcement (laminated) on an open (to the surrounding air) female or male mold. The laminate is built up to the required thickness and is then allowed to cure. After the cure is completed, the part is removed and the mold is reused. A male mold is convex leaving a smooth inner surface and a female mold is concave leaving a smooth outer surface on the product. Since smooth outer surfaces are normally desired, female molds are most commonly used in fiberglass boat production.

The primary type of resin used in fiberglass boat production is polyester resin. Polyester resins used by Sea Ray typically consist of styrene monomer and polyester solids. Before applying the resin, the necessary catalyst and accelerator are added to initiate curing. During curing, the styrene monomer polymerizes forming a thermo-setting plastic. This is an exothermic process, and because styrene monomer reacts more rapidly at elevated temperatures, the reaction is autocatalytic.

The different composite parts of the boat (deck, hull, and small parts) are primarily fabricated in the lamination area. The first step in the production process is coating the mold with a releasing agent such as wax. This allows the finished laminated part to be pulled or removed from the mold. Next, a gel coat is usually applied on the mold with a spray gun in a ventilated spray booth. The gel coat is a pigmented polyester resin, which forms the outer smooth surface of the molded part. After spraying, the gel coat hardens or cures with a smooth surface against the mold and a tacky outer surface, which enhances later bonding of the first layer of laminate.

After the gel coat cures, the first layer of resin and fiberglass laminate is applied using the lamination method described below. The lamination procedure is repeated until the desired thickness is achieved. Structural reinforcements such as wood, plastic, and metal are also added during lamination. Lamination is a batch process with time between laminates dependent on cure time of the resin. After the final lamination has cured, the part is removed from the mold and the excess is trimmed from the part.

After the parts are removed from the mold, they are then taken to the grinding area where they are sanded, inspected, and repaired if required. Once removed from the inspection area parts are delivered to the assembly area where carpet and accessories are installed to produce the finished product.

At this Sea Ray facility, resin is primarily applied with a flow coater or other non-atomizing applicator. On occasion, however, rollers are also used for resin application. A brush or other device is usually employed to even out the resin. After a thin coat of resin has been applied to the gel coat or previous layer of laminate, fiberglass chop or other reinforcement is placed over the wet resin. The primary fiberglass reinforcements used are woven roving, cloth, and mat. Squeegees or metal rollers are then employed to force the resin up through the reinforcement and remove any entrapped air (wet out). The resin is allowed to gel and the lamination process is repeated until the desired thickness of fiberglass laminate is obtained.

Catalyst injection flow coaters are used in this Sea Ray facility. They mix accelerated resin and the catalyst to the proper proportion inside the gun spray handle and then force the mixture through a single nozzle with multiple orifices.

A chopper gun has been developed and will be used to simultaneously apply non-atomized resin and chopped strands of glass reinforcement. Brushers and rollers are then used to spread the mixture and remove entrapped air. This process is repeated until the desired thickness is obtained.

The advantage of using woven roving or cloth laminate over chopped fiberglass is that a product with a higher strength to weight ratio is produced. However, the fabrication process takes longer when the woven roving or cloth laminate is used. A common practice of Sea Ray is to combine these two techniques. With this combination, parts of a boat that need to be strongest are fabricated using woven roving or cloth laminated while parts that do not need as much strength, such as small parts, are fabricated using chopped fiberglass. This results in a relatively lightweight boat this is produced in the minimum amount of time.

Sea Ray utilizes various closed molding processes to manufacture some of the small parts that are produced at the facility. Examples of closed molding include Resin Transfer Molding (RTM), light RTM, Compression Molding, Cold Press, Vacuum-Assisted Resin Transfer Molding (VARTM), Virtual Engineered Composites (VEC), Seeman Composites Resin Infusion Molding Process (SCRIMP), and other similar closed molding techniques.

This Sea Ray facility does not have an add-on control device to control the Hazardous Air Pollutants (HAPs) and Volatile Organic Compounds (VOCs) emissions from the boat manufacturing activities.

The Lamination Building does have a single, 8-foot diameter, 75-foot high stack (Emissions point E54) with an approximate 300,000 acfm flow rate to reduce the odorous impact to the nearby area.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

The **Figure 1** defines the process steps taken by Sea Ray as the boats are manufactured.

PROJECT DESCRIPTION

The purpose of this permitting project is to revise the existing Title V permit for the above referenced facility: 1) add a Kohler Power Systems, natural gas-fired emergency generator (Emissions Unit 005) to the permit, 2) revise Appendix I – List of Insignificant Emissions Units and/or Activities to reflect the Fabrication Baghouse sound attenuator addition and replacement of the existing blower, 3) revise Appendix I – List of Insignificant Emissions Units and/or Activities to include foaming of stringers in the existing Foaming Operation, and 4) make a typographical correction to the brake horsepower of the engine of the existing Cummings Power Generation natural gas-fired emergency generator set (Emissions Unit 004).

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V Air Operation Permit Renewal received December 16, 2014
Notice of Intent to Issue Air Permit issued December 23, 2014
Public Notice Published Month XX, 2015

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is identified as a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is ~~not~~ a Prevention of Significant Deterioration (PSD) - major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility does operate units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

- The Kohler Power Systems 100 kW (134 bHP) Natural Gas generator is subject to 40 CFR 60, Subpart JJJJ, Stationary ICE.

NESHAP: The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

- Facility is subject to 40 CFR 63, Subpart VVVV, Boat Manufacturing.
- The Cummings Power Generation 85 kW (~~131~~ 113 bHP) Natural Gas generator set subject to 40 CFR 63, Subpart ZZZZ, Stationary RICE
- The Kohler Power Systems 100 kW (134 bHP) Natural Gas generator is subject to 40 CFR 63, Subpart ZZZZ, Stationary RICE.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to any of the units at the facility.

GHG: The facility has the potential to emit greater of less than 100,000 TPY of CO_2e emissions, and is therefore a minor source of Greenhouse Gases based on EPA's 2010 Gas Tailoring Rule.

PROJECT REVIEW

The following is a brief description of the changes that were made as part of this revision:

The Annual Operation Report and Annual Emissions Fee Form and Fee Facility-Wide Conditions are revised to reflect the changes to the statutes that went into effect for year 2014, and the Prevention of Accidental Releases Facility-wide condition is revised to reflect the correct reporting agency.

TITLE V PERMIT FORMAT CHANGES:

- Appendix RR- Facility-wide Reporting Requirements is updated
- Appendix NESHAP, Part 63 Subpart A is updated
- Appendix NESHAP, Part 63, Subpart ZZZZ is updated
- Appendix NSPS, Part 60 Subpart A is added
- Appendix NSPS, Part 60 Subpart JJJJ is added
- The Annual Operation Report and Annual Emissions Fee Form and Fee Facility-Wide conditions are replaced as follows:

FW7. Electronic Annual Operating Report and Title V Annual Emissions Fees. The information required by the Annual Operating Report for Air Pollutant Emitting Facility [Including Title V Source Emissions Fee Calculation] (DEP Form No. 62-210.900(5)) shall be submitted by April 1 of each year, for the previous calendar year, to the Department of Environmental Protection's Division of Air Resource Management. Each Title V source shall submit the annual operating report using the DEP's Electronic

Annual Operating Report (EAOR) software, unless the Title V source claims a technical or financial hardship by submitting DEP Form No. 62-210.900(5) to the DEP Division of Air Resource Management instead of using the reporting software. Emissions shall be computed in accordance with the provisions of subsection 62-210.370(2), F.A.C. Each Title V source must pay between January 15 and April 1 of each year an annual emissions fee in an amount determined as set forth in subsection 62-213.205(1), F.A.C. The annual fee shall only apply to those regulated pollutants, except carbon monoxide and greenhouse gases, for which an allowable numeric emission-limiting standard is specified in the source's most recent construction permit or operation permit. Upon completing the required EAOR entries, the EAOR Title V Fee Invoice can be printed by the source showing which of the reported emissions are subject to the fee and the total Title V Annual Emissions Fee that is due. The submission of the annual Title V emissions fee payment is also due (postmarked) by April 1st of each year. A copy of the system-generated EAOR Title V Annual Emissions Fee Invoice and the indicated total fee shall be submitted to: **Major Air Pollution Source Annual Emissions Fee, P.O. Box 3070, Tallahassee, Florida 32315-3070.** Additional information is available by accessing the Title V Annual Emissions Fee On-line Information Center at the following Internet web site: http://www.dep.state.fl.us/air/emission/tvfee.htm. [Rules 62-210.370(3), 62-210.900 & 62-213.205, F.A.C.; and, §403.0872(11), Florida Statutes (2013); and Rule 2.301, JEPB; Rule 2.501, JEPB]

{Permitting Note: Resources to help you complete your AOR are available on the electronic AOR (EAOR) website at: http://www.dep.state.fl.us/air/emission/eaor. If you have questions or need assistance after reviewing the information posted on the EAOR website, please contact the Department by phone at (850) 717-9000 or email at eaor@dep.state.fl.us.}

{Permitting Note: The Title V Annual Emissions Fee form (DEP Form No. 62-213.900(1)) has been repealed. ***A separate Annual Emissions Fee form is no longer required to be submitted by March 1st each year.****}*

- The Prevention of Accidental Releases (Section 112(r) of CAA) Facility-Wide Condition is replaced as follows:

FW9. Prevention of Accidental Releases (Section 112(r) of CAA). If, and when, the facility becomes subject to 112(r), the permittee shall:

b. Submit its Risk Management Plan (RMP) to the Chemical Emergency Preparedness and Prevention Office (CEPPO) RMP Reporting Center. Any Risk Management Plans, original submittals, revisions or updates to submittals, should be sent electronically through EPA's Central Data Exchange system at the following address: https://cdx.epa.gov. Information on electronically submitting risk management plans using the Central Data Exchange system is available at: http://www.epa.gov/osweroe1/content/rmp/index.htm. The RMP Reporting Center can be contacted at: RMP Reporting Center, Post Office Box 10162, Fairfax, VA 22038, Telephone: (703) 227-7650.

b. Submit to the permitting authority Title V certification forms or a compliance schedule in accordance with Rule 62-213.440(2), F.A.C.

[40 CFR 68]

APPLICANT REQUESTED REVISIONS

1. A new Emission Unit 005 has been created to identify the Kohler Power Systems, natural gas-fired generator that is located onsite.
2. In the revision application received on December 16, 2014, the applicant also requested the following changes.

   a. *Request:* Applicant requests that the brake horsepower (bHP) listed in the description of Emission Unit 004 be corrected.

   Using a conversion factor, 85 kW is equivalent to 114 bHP.

Therefore, the description for Emission Unit 004 is changed as follows:

EU No.	Brief Description
-004	Cummings Power Generation 85 kW (113 ~~131~~ bHP) Natural Gas generator set, Model GGHG, Engine model WSG-1068 *The engine is a four-stroke cycle, turbocharged, 10-cylinder, spark ignition, natural gas engine with a total displacement of 6.8 liter. Emissions control includes a 3-way catalyst. The unit was manufactured in September 2004. Construction commenced in October 2004.* *The engine is subject to 40 CFR 63 40 CFR 63 Subpart ZZZZ National Emissions Standards For Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines. In accordance with the definitions of this subpart, the engine is an existing, stationary RICE.*

   b. *Request:* Revise Insignificant Activity, Foam Operation, the expand definition to include foaming of stringers.

   Hull stringers provide the primary structure or truss system to support the hull shell. The foam for the stringers is a mixture of 4,4' Methylene diphenyl diisocyanate (MDI) and Polymeric MDI with a vapor pressure that is one time ten to the minus six millimeters of mercury (mmHG). The foaming material does not evaporate and any emissions that are associated with this process cannot be measured in rigid applications such as boat manufacturing.

   Therefore, Appendix I – List of Insignificant Emissions Units and/or Activities is changed as follows:

   1. Foam Operation (Side foam in hull of boat, injection method, foaming of stringers, etc.) due to negligible volatile organic compound (VOC) emissions from closed system, i.e. less than 5 tons per year (TPY) of VOC. [Rule 62-213.430(6)(b)d., Florida Administrative Code (F.A.C.)].

c. *Request:* Revise Insignificant Activity, Fabrication Baghouse including addition of sound attenuator and replacement of existing blower.

The blower on the Fabrication building baghouse is being replaced with a new IAP model 270/100 backward inclined blower in order to reduce the sound level on the blower. The performance of the new blower will be the same as the existing blower.

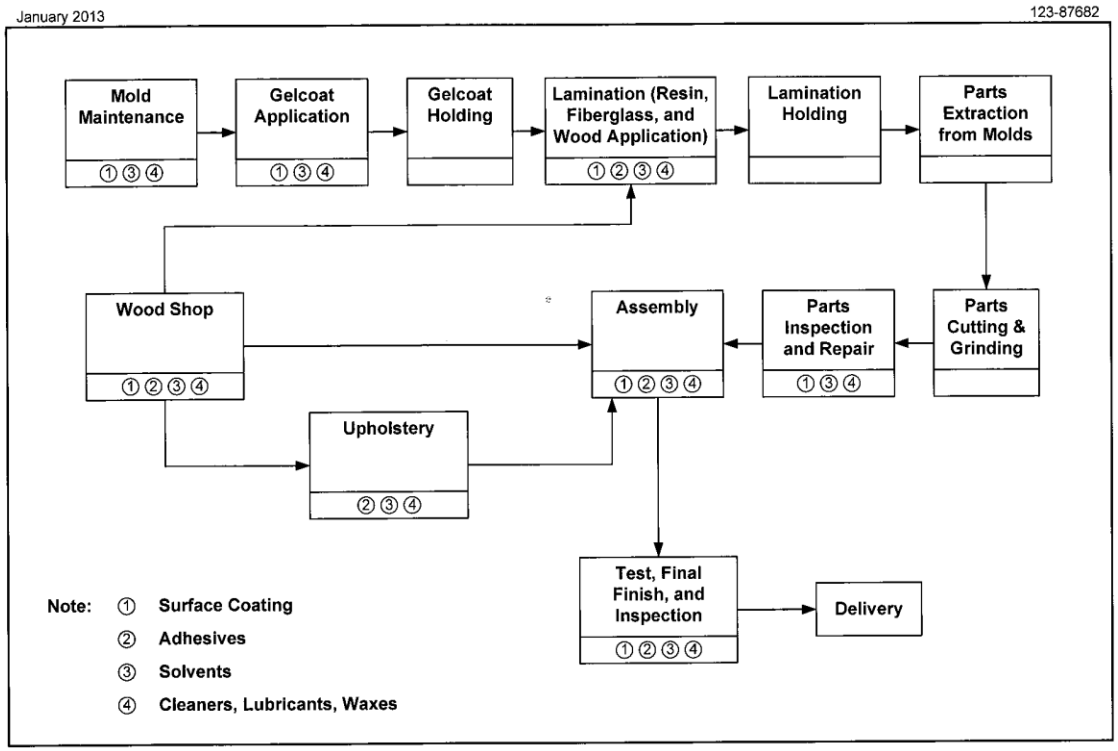
Therefore, Appendix I – List of Insignificant Emissions Units and/or Activities is changed as follows:

2. One (1) baghouse equipped with an IAP model 270/100 backward inclined blower located on the north and west side of the Fabrication Building. One (1) baghouse located on the south and west side of the Assembly Building. Due to negligible particulate matter emissions, i.e. less than 5 TPY of Particulate Matter (PM) and VOC. Visible Emissions less than 20% Opacity. (Rules 62-213.430(6)(b)d., F.A.C., 62-296.320(4)(b), F.A.C.).

CONCLUSION

This project revises Title V air operation permit No. 0350003-009-AV. This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.

Figure 1



Attachment SRB-FI-C2
Boat Manufacturing Flow Diagram (Indicating Various Processes Involved)
Sea Ray Boats, Inc.

Source: Golder, 2008.

Golder Associates

Y:\Projects\2012\123-87682 Sea Ray TVRen\Final\Atts\SRB-FI-C2.vsd