STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

The Talaria Company, LLC **d/b/a The Hinckley Company, LLC** **Hancock County** **Trenton, Maine** **A-798-71-C-R/A**	**Departmental** **Findings of Fact and Order** **Air Emission License** **Renewal / Amendment**

FINDINGS OF FACT

After review of the air emission license renewal and amendment application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

The Talaria Company, LLC, d/b/a The Hinckley Company, LLC (Hinckley) has applied to renew its Air Emission License for the operation of emission sources associated with its boat building facility.

Hinckley was issued an initial Title V Air Emission License (A-798-70-A-I) on December 31, 2002, as a major source of HAP, and as such, Hinckley was subject to *National Emission Standard for Hazardous Air Pollutants for Boat Manufacturing,* 40 C.F.R. Part 63, Subpart VVVV. Since its initial Title V License, Hinckley reduced HAP emissions with operational changes to below major source levels. However, due to EPA's 1995 "once in always in" policy for Maximum Achievable Control Technology standards via 40 C.F.R. Part 63, the facility remained subject to Subpart VVVV and Title V licensing requirements. On January 25, 2018, EPA published a memo effectively ending the "once in always in" policy, allowing Hinckley to be licensed with HAP limits below major HAP source levels and replace its Title V license with a minor source license.

Hinckley has also requested an amendment to its license to include buildings, equipment, and activities at Morris Yachts, LLC (Morris), a previously licensed (A-824-71-C-R, dated November 26, 2012) facility owned by Hinckley and to remove parts washers licensed in NSR A-798-77-1-M (dated December 7, 2015).

The equipment addressed in this license is located at 40 Industrial Way (Hinckley) and 27 Ramp Road (Morris), both in Trenton Maine.

B. Emission Equipment

The following equipment and processes are addressed in this air emission license:

Fuel Burning Equipment

Equipment	Max. Input Capacity (MMBtu/hr)	Max. Firing Rate (gal/hr)	Output (kW)	Fuel Type, % sulfur	Mfr. Date	Install. Date	Stack #
Generator #1 (Morris Facility)	1.05	11.56	80	LPG, Negligible Sulfur	2017	2017	3
Oven #1 (Morris Facility)	3.19	34.9	NA	LPG, Negligible Sulfur	2017	2018	1

Hinckley may operate small stationary engines smaller than 0.5 MMBtu/hr. These engines are considered insignificant activities and are not required to be included in this license. However, they are still subject to applicable State and Federal regulations. More information regarding requirements for small stationary engines is available on the Department's website at the link below.
http://www.maine.gov/dep/air/publications/docs/SmallRICEGuidance.pdf

Additionally, Hinckley may operate portable engines used for maintenance or emergency-only purposes. These engines are considered insignificant activities and are not required to be included in this license. However, they may still be subject to applicable State and Federal regulations.

Process Sources

Process	Equipment	Pollutants	Pollution Control Methods
Advanced Composite Boat Manufacturing	Spray Guns and Vacuum Infusion	Fugitive VOC and HAP	Closed Mold Vacuum Infusion
Boat Assembly	Job Shop	Fugitive PM, VOC, and HAP	Building Exhaust Filters
Surface Finishing	Spray Guns and Spray Booth	Fugitive PM, VOC, and HAP	Spray Booth Ventilation and Building Exhaust Filters

C. Definitions

Portable Engine. For the purposes of this license, *portable engine* means an internal combustion engine which is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. This definition does NOT include engines which remain or will remain at a location (excluding

storage locations) for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period.

Liquefied Petroleum Gas (LPG) is defined, for the purposes of this license, as ethane, ethylene, propane, propylene, normal butane, butylene, and isobutene produced at refineries or natural gas processing plants, including plants that fractionate new natural gas. [EPA guidance and AP-42 Chapter 1, Section 5]

Monomer VOC is defined, for the purposes of this license, as a relatively low-molecular-weight organic compound such as styrene that combines with itself, or other similar compounds, by a cross-linking reaction to become a cured thermosetting resin.

Operation is defined, for the purposes of this license, in the context of the fiberglass boat manufacturing process, as the application of each type of open molding resin and gel coat material. Operations, as cited in 06 096 C.M.R. ch. 162, include production resin application, pigmented gel coat application, clear gel coat application, tooling resin application, and tooling gel coat application.

D. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The application from Hinckley requests the licensing of existing equipment and the inclusion of equipment and processes of another nearby facility being merged with the Hinckley facility. Therefore, the license is considered to be a renewal of currently licensed emission units and an amendment and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 Code of Maine Rules (C.M.R.) ch. 115.

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the "Significant Emission" levels as defined in the Department's *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The emission increases are determined by subtracting the current licensed annual emissions preceding the modification from the maximum future licensed annual emissions, as follows:

Pollutant	Current License (TPY)	Future License (TPY)	Net Change (TPY)	Significant Emission Levels
PM	--	0.7	+ 0.7	100
PM_{10}	--	0.7	+ 0.7	100
SO_2	--	--	--	100
NO_x	--	2.5	+ 2.5	100
CO	--	2.0	+ 2.0	100
VOC	39.0	39.0	--	50
Single HAP	N/A	9.9	Established Area Source Limit	N/A
Total HAP	N/A	24.9	Established Area Source Limit	N/A

This modification is determined to be a minor modification and has been processed as such.

With the annual volatile organic compound (VOC) and hazardous air pollutant (HAP) limits associated with the boat building processes and the operating hours restriction on the emergency generator, the facility is licensed below the major source thresholds for criteria air pollutants (CAP) and HAP and is considered a synthetic minor source of CAP and an area source of HAP.

E. Facility Classification

With the VOC and HAP limits associated with the composite fabrication and coating operations, the facility is licensed as follows:

- As a synthetic minor source of air emissions, because the licensed emissions are below the major source thresholds for criteria pollutants; and
- As an area source of HAP, because the licensed emissions are below the major source thresholds for HAP.

Emissions of HAP are licensed above 80% of the major source threshold. Therefore, this facility is classified as an "80% Synthetic Minor" for the purpose of determining the minimum required compliance inspection frequency in accordance with Maine's Compliance Monitoring Strategy.

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 *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment.

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. Facility Description

Hinckley performs three processes that can result in air emissions: advanced composite boat manufacturing, boat assembly, and surface finishing.

Hinckley manufactures boats using advanced composite technology, implementing two methods for boat manufacturing: a polyester/vinylester resin process and an epoxy resin process.

In the polyester/vinylester resin boat manufacturing process, boat parts are produced using unsaturated polyester and vinyl ester resins and gel coats, and methyl ethyl ketone peroxide (catalyst). The resins and gel coats contain monomer VOCs which act as linking agents and partially volatize during application and curing. Hinckley utilizes both closed mold (vacuum infusion) and open mold technology in the lamination process.

In the epoxy resin boat manufacturing process, boat parts are produced using epoxy resins, polyamine mixtures (as the curing agent), and polyester/vinylester gel coats.

The key differences between the two manufacturing methods are as follows:

- Epoxy resins contain little or no VOC and no HAP, whereas polyester/vinylester resins typically contain 30-50% VOC and HAP;
- Boats manufactured with epoxy resins typically use more carbon fiber and less fiberglass than boats manufactured with polyester/vinylester resin;
- Hulls manufactured with epoxy resins require post curing in a heated space or oven; and

- polyester/vinylester resins require methyl ethyl ketone peroxide for activation and hardening where epoxy resins are used with a polyamine mixture for hardening.

The completed boat parts from both processes are moved to one of the two jet boat buildings for assembly. Following the assembly process, the boat hulls are painted in the surface finishing building.

Hinckley purchased Morris, which is located approximately 1 mile away, in 2016. When purchased, operations at Morris were kept separate from Hinckley operations and both facilities maintained separate licenses. With the transition to epoxy resin boat manufacturing, operations at the facilities have merged and all operations, with the exception of the epoxy heat-curing, can be completed at either facility to produce both Hinckley and Morris products. Because of this change and because of the proximity of the two facilities, the Department has determined that they are the same emissions source and they will be included in one license.

C. Oven #1

Hinckley operates an oven to cure epoxy resins used to manufacture boat hulls. The oven was installed in 2018 and has a rated maximum heat input capacity of 3.19 MMBtu/hr, firing LPG.

Oven #1 is located at the Morris facility and will be used for epoxy hulls molded at both facilities.

1. BPT Findings

Emission limits for Oven #1 were established as Best Available Control Technology (BACT) limits in A-824-71-F-A (February 27, 2018) and were based on the following:

Liquefied Petroleum Gas

PM	0.05 lb/MMBtu 06-096 C.M.R. ch. 115, BACT
PM_{10}	0.2 lb/1000 gal AP-42 Table 1.5-1, dated 07/08
SO_2	0.018 lb/1000 gal AP-42 Table 1.5-1, dated 07/08, and the firing of propane with a sulfur content of 0.18 gr/100 ft3
NO_x	13 lb/1000 gal AP-42 Table 1.5-1, dated 07/08

CO	7.5 lb/1000 gal AP-42 Table 1.5-1, dated 07/08
VOC	0.8 lb/1000 gal AP-42 Table 1.5-1, dated 07/08 (Total Organic Carbon – CH_4)
Visible Emissions	06-096 C.M.R. ch. 115, BACT

The BACT emission limits for Oven #1 are the following:

Unit	Pollutant	lb/MMBtu
Oven #1	PM	0.05

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Oven #1 LPG	0.16	0.16	Negligible	0.45	0.26	0.03

Visible Emissions

Visible emissions from Oven #1 shall not exceed 10% opacity on a six-minute block average basis.

Classification of VOC and HAP Emissions from Curing

Epoxy-based parts produced at Hinckley are formed using a vacuum infusion closed molding process. Once the epoxy is hardened at room temperature, each hull is removed from its mold and put in the oven to complete the curing process.

No coatings or uncured styrene-based resins/gelcoats are used for the parts that are put into the oven, and VOC and HAP contents of the epoxy resins and hardeners are well below 1% by weight. In addition to the low VOC and HAP contents of the epoxy resins, the resins are hardened at room temperature after closed molding operations for which the resins are employed, stabilizing the chemical composition of the finished material and therefore further reducing any potential VOC and HAP emissions from the heating.

Because of the low VOC and HAP contents of the epoxy resins, the amount of operational control of VOC and HAP leading to final curing in the oven, and the operational restrictions of the oven (number of hulls that can fit, time to cure the hulls), the Department has determined the oven curing process does not have the potential to emit VOC or HAP above minimum licensing thresholds and is therefore considered an insignificant activity pursuant to 06-096 C.M.R. ch. 115.

2. New Source Performance Standards (NSPS): 40 C.F.R. Part 60, Subpart Dc

   Oven #1 is not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60, Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. The unit is considered a process heater under the subpart and is therefore exempt.

3. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 C.F.R. Part 63, Subpart JJJJJJ

   Oven #1 is not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJJ. The unit is not considered a boiler under the subpart because it heats air and is therefore exempt.

D. Generator #1

Hinckley operates Generator #1 as an emergency generator located at the Morris facility. The unit is a generator set consisting of an engine and an electrical generator. It has an engine rated at 1.05 MMBtu/hr, which fires LPG, and it was manufactured in 2017.

1. BPT Findings

   Emission limits were established as BACT for Generator #1 in A-824-71-E-A (April 12, 2017) and were based on the following:

   Liquefied Petroleum Gas

PM	0.00991 lb/MMBtu AP-42 Table 3.2-3, dated 07/00 (Natural Gas)
PM_{10}	0.00950 lb/MMBtu AP-42 Table 3.2-3, dated 07/00 (Natural Gas)
SO_2	0.000588 lb/MMBtu AP-42 Table 3.2-3, dated 07/00 (Natural Gas)
NO_x	2.27 lb/MMBtu AP-42 Table 3.2-3, dated 07/00 (Natural Gas)
CO	3.72 lb/MMBtu AP-42 Table 3.2-3, dated 07/00 (Natural Gas)
VOC	0.0296 lb/MMBtu AP-42 Table 3.2-3, dated 07/00 (Natural Gas)
Visible Emissions	06-096 C.M.R. ch. 115, BACT

PM, PM_{10}, and SO_2 Emission Factors

Emission factors for PM, PM_{10}, SO_2, NO_x, CO, and VOC are from AP-42, based on the uncontrolled combustion of natural gas for 4-stroke rich-burn engines. AP-42 does not provide emission factors for the combustion of LPG in internal combustion engines; however, the Department has determined that the standards for natural gas offer the best available emission factors for use in determining lb/hr emission limits for the engine.

BACT Emission Limits:

The BACT emission limits for Generator #1 are the following:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1 (1.05 MMBtu/hr) LPG	0.01	0.01	Negligible	2.38	3.91	0.03

Visible Emissions

Visible emissions from Generator #1 shall not exceed 10% opacity on a six-minute block average basis.

2. 40 C.F.R. Part 60, Subpart JJJJ

Standards of Performance for Spark Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart JJJJ is applicable to Generator #1 since the unit was ordered after June 12, 2006, and manufactured after January 1, 2009. [40 C.F.R. § 60.4230] By meeting the requirements of 40 C.F.R. Part 60, Subpart JJJJ, the unit also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

a. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart JJJJ, a stationary reciprocating internal combustion engine (ICE) is considered an emergency stationary ICE (emergency engine) as long as the engine is operated in accordance with the following criteria. Operation of an engine outside of the criteria specified below may cause the engine to no longer be considered an emergency engine under 40 C.F.R. Part 60, Subpart JJJJ, resulting in the engine being subject to requirements applicable to non-emergency engines.

(1) Emergency Situation Operation (On-Site)

There is no operating time limit on the use of an emergency engine to provide electrical power or mechanical work during an emergency situation. Examples of use of an emergency engine during emergency situations include the following:

- Use of an engine to produce power for critical networks or equipment (including power supplied to portions of a facility) because of failure or interruption of electric power from the local utility (or the normal power source, if the facility runs on its own power production);
- Use of an engine to mitigate an on-site disaster or equipment failure;
- Use of an engine to pump water in the case of fire, flood, natural disaster, or severe weather conditions; and
- Similar instances.

(2) Non-Emergency Situation Operation

An emergency engine may be operated up to a maximum of 100 hours per calendar year for maintenance checks, readiness testing, and other non-emergency situations as described below.

(i) An emergency engine may be operated for a maximum of 100 hours per calendar year for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government; the manufacturer; the vendor; the regional transmission organization or equivalent balancing authority and transmission operator; or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE more than 100 hours per calendar year.

(ii) An emergency engine may be operated for up to 50 hours per calendar year for other non-emergency situations. **However, these operating hours are counted as part of the 100 hours per calendar year operating limit described in paragraph (2) and (2) (i) above.**

The 50 hours per calendar year operating limit for other non-emergency situations cannot be used for peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 C.F.R. §§ 60.4243(d) and 60.4248]

b. 40 C.F.R. Part 60, Subpart JJJJ Requirements

(1) Manufacturer Certification Requirement
The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1. [40 C.F.R. § 60.4233]

(2) Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on the engine. [40 C.F.R. § 60.4237]

(3) Operation and Maintenance Requirement
The engine shall be operated and maintained according to the manufacturer's written instructions or procedures developed by Hinckley that are approved by the engine manufacturer. Hinckley may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

(4) Annual Time Limit for Maintenance and Testing
As an emergency engine, Generator #1 shall be limited to 100 hours/year for maintenance and testing. The engine may operate up to 50 hours per year in non-emergency situations, but those 50 hours are included in the 100 hours total allowed for maintenance and testing. The 50 hours for non-emergency use cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 C.F.R. § 60.4243(d)]

(5) Recordkeeping
Hinckley shall keep records that include maintenance conducted on the engine and the hours of operation of the engine recorded through the non-resettable hour meter. Documentation shall include the number of hours the unit operated for emergency purposes, the number of hours the unit operated for non-emergency purposes, and the reason the engine was in operation during each time. [40 C.F.R. § 60.4245(b)]

E. Process Emissions

1. Process Descriptions

As outlined in the Facility Description section of the Findings of Fact, Hinckley performs three processes that can result in air emissions; advanced composite boat manufacturing, assembly, and surface finishing. The following is a description of each step, identifying where VOC and HAP emissions occur.

a. Advanced Composite Boat Manufacturing

This process is comprised of two sets of operations, Polyester/Vinylester Resin Operations and Epoxy Resin Operations.

Polyester/Vinylester Resin Operations

Hinckley manufactures parts using unsaturated polyester/vinylester resins and gelcoats. The resins used contain a styrene monomer (which is both a monomer VOC and a HAP) as the linking agent, which partially volatizes during spraying and curing.

The lamination process consists of both closed molding (vacuum infusion), in which resins are infused into a closed mold under vacuum pressure, and open contact molding in which layers of gelcoat or resin-impregnated fiberglass reinforcement are laid up on an open mold.

The initial step in the lamination process is the spraying of a gelcoat layer on the mold surface. Gel coating is the application of a layer of resin (the gelcoat layer) with no reinforcing materials contained in it. The gelcoat contains unsaturated polyester resin, catalyst, and pigments to create the smooth outer surface of the hull and for ultraviolet light protection. The gelcoat is applied using resin applicators which mix the resin and catalyst as it is applied. Following the gel coating, a skin coat of resin and chopped fiberglass is applied on the mold. Gel coating and skin coating are done using open molding techniques. VOC and HAP are released during this process as the linking agent (styrene in most cases) volatizes.

The subsequent layers of reinforced materials such as balsa wood, fiberglass, or carbon fiber are applied to the mold dry. The thickness of lamination depends on both the style of boat and the location within the hull (i.e. high stress areas will have more layers applied). The part is then covered by plastic. Using the vacuum infusion method, the resin is drawn through the structural materials and is allowed to cure at room temperature. There are no exposed resin surfaces in closed molding processes, and an increased rate of polymerization is achieved with the closed molding method relative to an open molding process due to the elimination of

airflow across the surface of the product. This increased polymerization and reduction in exposed area substantially limits VOC and HAP emissions as the linking agent does not volatize and release as much as in open molding operations.

Epoxy Resin Operations

Hinckley's primary epoxy resin operations are completed using a mix of gelcoats and epoxy resins.

Gelcoat application and curing during the lamination step of the epoxy resin-based process is completed in the same way as lamination in the polyester/vinylester resin-based process. This open molding results in most/all VOC/HAP emissions from the whole epoxy resin-based process.

Following the proper curing of the gelcoat on the hull or interior pan, subsequent layers of reinforced materials such as foam core, fiberglass, Kevlar, and carbon fiber are applied to the part. As with the polyester/vinylester resin process, the thickness of the lamination depends on both the style of the boat and the location within the hull. Once the fiber is applied, closed molding is completed with epoxy resin.

The epoxy hulls are post cured in a heated space or Oven #1 to improve physical strength and thermal properties.

b. Boat Assembly

The individually-constructed or purchased parts and accessories are put together during the assembly phase to create the structure of the boat. During this process, interior and cabin furnishings and equipment are installed and the deck is attached to the hull. VOC and HAP emissions from this process are from the use of various glues, putties, resins, cleaning solvents, and occasional touchup/repair work.

c. Surface Finishing

Hinckley surface-finishes hulls of completed boats in a designated surface-finishing building consisting of three bays. Particulate matter is primarily emitted from this process; however, minor amounts of varnishing and painting are performed which result in VOC and/or HAP emissions.

2. BPT for VOC and HAP emissions

a. VOC, Total HAP, and Single HAP Annual Emission Limits

Hinckley shall limit emissions from its boat building process so that entire-facility emissions do not exceed the following on a 12-month rolling total basis:

- 39.0 tons per year of VOC
- 24.9 tons per year of HAP
- 9.9 tons per year of any single HAP

Hinckley shall demonstrate compliance with the annual VOC and HAP emission limits by maintaining records of total VOC, total HAP, and single HAP emissions. Records shall be kept on a monthly and 12-month rolling total basis and shall include the recordkeeping and calculations described below.

b. VOC, Total HAP, and Single HAP Tracking

Hinckley shall demonstrate compliance with the annual VOC and HAP emission limits by maintaining records of total VOC, total HAP, and single HAP emissions. Records shall be kept on a monthly and 12-month rolling total basis and shall include the following recordkeeping and calculations:

(1) Single HAP Emissions from Open and Closed Molding Operations

Single HAP emissions shall be calculated and recorded as a total value for the facility for each HAP. The values from the open molding and closed molding processes, as applicable, shall be calculated in accordance with the following:

(a) Open Molding Styrene and Methyl Methacrylate (MMA) Emissions

Hinckley shall record the amount of each resin, filled resin, and gelcoat used for open molding operations. Each material shall be categorized by its application method. Application methods shall be based on those presented in the most current Unified Emission Factor (UEF) estimation model for open molding of composites. The UEF model is based on a compilation of research conducted by the Composites Fabricators Association (CFA), the National Marine Manufacturing Association (NMMA), and the United States Environmental Protection Agency (EPA).

Hinckley shall record the styrene and methyl methacrylate concentrations of each resin, filled resin, and gelcoat used for open molding operations and shall use applicable equations in the UEF model to calculate styrene and methyl methacrylate emission rates.

Using the calculated emission rates of styrene and methyl methacrylate, Hinckley shall calculate emissions of the two pollutants. Hinckley shall use the following method to calculate the emissions for each material:

$$Styrene\ or\ MMA\ Emissions = Mass\ Applied * Styrene\ or\ MMA\ Emission\ Rate$$

Hinckley shall also calculate the emissions of other single HAPs as they appear on the UEF model and are relevant to the materials that Hinckley uses.

(b) Closed Molding Styrene and Methyl Methacrylate Emissions

Hinckley shall record the amount of each resin and filled resin used for closed molding operations and shall categorize them as such. Hinckley shall also record the styrene concentrations of each. Because gel coats are not utilized in closed molding operations and because closed molding resins do not contain MMA, neither gel coats nor MMA concentrations are necessary to include for closed molding calculations for single HAP.

Hinckley shall assume a 1% release of styrene from closed molding operations. Styrene emissions from closed molding operations shall therefore be determined using the following mass balance equation for each material:

$$Monthly\ Emissions = 0.01 * Mass\ Applied * Styrene\ Content$$

Where the mass applied of each material is on a monthly basis and the styrene contents are as weight percent.

(2) Total VOC and Total HAP Emissions from all Process Operations

Hinckley shall record the total VOC and HAP content of each VOC and/or HAP containing material used in its yacht building process.

Except as noted below*, Hinckley shall track total VOC and total HAP emissions using the following mass balance for <u>each</u> VOC and/or HAP containing material used, including but not limited to resins, gelcoats, adhesives, paints, cleaning solvents, and catalysts:

$$Monthly\ Emissions = (A - B) * VOC\ or\ HAP\ Content$$

Where:

A	=	Monthly facility purchases (mass)
B	=	Monthly quantity shipped offsite (mass)

*Closed Molding:
For materials used in closed molding operations, Hinckley may assume the 1% release of all VOC and HAP and may calculate total VOC and total HAP emissions by using the following equation for each applicable material, utilizing the same variables as above:

$$Monthly\ Emissions = (A - B) * VOC\ or\ HAP\ Content * 0.01$$

*Single HAP Containing Materials:
Hinckley may elect to utilize the open or closed molding Styrene and MMA emissions calculated pursuant to the Single HAP requirements of this license, as applicable, and complete the material balance for the remaining VOC or HAP contents of each material.

c. Work Practice Standards

(1) To minimize VOC and HAP emissions from resin application, Hinckley shall use the closed mold method (i.e., vacuum infusion) whenever this technology has proven to reliably work and be cost effective. For applications when the closed mold method is not feasible or cost effective, Hinckley shall use the mechanical, non-atomized, or airless spray gun technique for resin application in all but the manufacture of small and/or irregular parts.

(2) Hinckley shall promote good housekeeping practices (closed lids, proper storage, etc.) and ensure that all VOC / volatile HAP containing materials are handled properly to minimize emissions. The procedure shall ensure that all VOC and/or volatile HAP containers are properly sealed when not in immediate use and that all of the containers are handled in a manner to reduce the chance of spills.

(3) Hinckley shall continue research and manufacturing test trials of pollution prevention technologies (low styrene resins, closed mold systems, etc.) and shall document changes and improvements made to reduce VOC and HAP emissions as they occur. An annual report documenting the research and test trial results from the previous year shall be available for inspection by the Department upon request.

(4) Hinckley shall control PM emissions from any surface coating process that vents to the ambient air via vent or duct through the use of a particulate filter or dust collection equipment such that visible emissions do not exceed 10% opacity on a six-minute block average basis.

(5) Hinckley shall control PM emissions from any cutting, buffing, grinding, or sanding processes that vent to the ambient air via vent or duct through the use

of a particulate filter or dust collection equipment such that visible emissions do not exceed 10% opacity on a six-minute block average basis.

(6) Hinckley shall use fabric filters to control PM emissions from surface finishing operations and buffing activities. Visible emissions from each process are limited to 10% opacity on a 6-minute block average basis.

(7) Hinckley shall reduce the potential for fugitive PM emissions from any process conducted outside by limiting such activity to periods of calm winds or through the use of a shroud or wind curtain.

(8) Hinckley shall keep records of filter maintenance and filter changes for the spray booth as appropriate.

3. Federal Rule Requirements

The following are applicability determinations for potentially applicable federal rules:

a. 40 C.F.R. Part 63, Subpart VVVV

Hinckley is not subject to *National Emission Standard for Hazardous Air Pollutants for Boat Manufacturing,* 40 C.F.R. Part 63, Subpart VVVV. This rule is only applicable to Major HAP Sources; because Hinckley has federally enforceable emissions limits on HAP, it is considered an area source of HAP and is exempt.

b. 40 C.F.R. Part 63, Subpart II

Hinckley is not subject to *National Emission Standards for Shipbuilding and Ship Repair (Surface Coating),* 40 C.F.R. Part 63, Subpart II. This rule is only applicable to Major HAP Sources; because Hinckley has federally enforceable emissions limits on HAP, it is considered an area source of HAP and is exempt.

c. 40 C.F.R. Part 63, Subpart PPPP

Hinckley is not subject to *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products,* 40 C.F.R. Part 63, Subpart PPPP. This rule is applicable to post-mold surface coating operations, but is only applicable to Major HAP Sources; Because Hinckley has federally enforceable emissions limits on HAP, it is considered an area source of HAP and is exempt.

4. State Rule Requirements

The following are applicability determinations for potentially applicable state rules:

a. 06-096 C.M.R. ch. 129

Hinckley is not subject to *Surface Coating Facilities,* 06-096 C.M.R. ch. 129. This rule is applicable to facilities that primarily coat cans, fabric, vinyl, metal furniture, flatwood paneling, and/or miscellaneous metal and plastic parts and products with maximum theoretical VOC emissions of 10 tons per year or actual VOC emissions of 2.7 tons per year, each on a 12-month rolling total basis.

Surface coating of the exteriors of completely assembled marine vessels or major marine vessel subassemblies which are exposed to the exterior of the vessel is exempt from this rule. Surface coating completed at Hinckley consists primarily of the topsides of boats, and the only metal and/or plastic parts that are coated are major subassemblies such as masts or engines. Because Hinckley does not surface coat any potentially applicable categories of parts, they are not required to maintain records of exemption presented in 06-096 C.M.R. ch. 129(7)(A)(1) and 06-096 C.M.R. ch. 129(7)(B)(1).

b. 06-096 C.M.R. ch. 159

Hinckley is subject to *Control of Volatile Organic Compounds from Adhesives and Sealants*, 06-096 C.M.R. ch. 159. This rule is applicable to facilities that use or apply, for compensation, any adhesive, sealant, adhesive primer, or sealer primer within the state of Maine.

Hinckley shall comply with all current and applicable requirements contained in 06 096 C.M.R. ch. 159.

c. 06-096 C.M.R. ch. 162

Maine rule, *Control for Fiberglass Boat Manufacturing Materials,* 06-096 C.M.R. ch. 162, is applicable to facilities that manufacture fiberglass hulls and decks of boats and have VOC emissions greater than 2.7 tons per year (TPY) from open molding resin and gel coating.

Because Hinckley utilizes open molding processes in its gel coating operations, it has the potential to emit greater than 2.7 TPY, and is currently subject to this rule based on historic annual emissions. However, because Hinckley has been optimizing and continues to optimize its manufacturing process for the reduction of VOC emissions, it may become exempt from this rule during the term of this license.

Hinckley shall therefore meet all current applicable requirements of 06-096 C.M.R. ch. 162, including the following as it remains subject:

(1) Monomer VOC Emission Regulation

State Rule 06-096 C.M.R. ch. 162 provides three methods for limiting monomer VOC emissions from resins and gel coats: the use of low monomer VOC content resins and gel coats, emission averaging among different operations, and the use of add-on emission control devices.

Hinckley has chosen to establish limits and demonstrate compliance through the emission averaging method using Equations 2 and 3 from the rule while maintaining the flexibility to use low monomer VOC content resins and gel coats for any of the following operations:

- Production resin application (Atomized and Nonatomized)
- Tooling resin application (Atomized and Nonatomized)
- Pigmented gel coat application
- Clear gel coat application
- Tooling gel coat application

(2) VOC Tracking for 06-096 C.M.R. ch. 162

(a) For all operations for which Hinckley chooses to use low monomer-VOC content resins and gel coats, monomer VOC contents shall be below values in the following table:

Table 1[1]

Material	Application Method	Limit of Weighted Average Monomer Content (weight percent)
Production resin	Atomized (spray)	28
Production resin	Nonatomized	35
Pigmented gel coat	Any method	33
Clear gel coat	Any method	48
Tooling resin	Atomized	30
Tooling resin	Nonatomized	39
Tooling gel coat	Any method	40

Hinckley may choose to comply either with the monomer VOC content limits from the previous table for each operation application method with

[1] 06-096 C.M.R. ch. 162, Table 1

each resin or gel coat or by using the weighted average monomer VOC contents for the specific operation application methods. The weighted average monomer VOC content shall be calculated using the following equation:

Equation 1[2]

$$Weighted\ Average\ Monomer\ VOC\ Content = \frac{\sum_{i=1}^{n}(M_i VOC_i)}{\sum_{i=1}^{n} M_i}$$

Where:

M_i	=	mass of each open molding resin or gel coat used in the past 12 months in an operation, in megagrams.
VOC_i	=	monomer VOC content, by weight percent, of each open molding resin or gel coat used in the past 12 months in an operation.
n	=	number of different open molding resins or gel coats used in the past 12 months in an operation.

The monomer VOC contents of resins and gel coats shall be determined by using South Coast Air Quality Management District SCAQMD Method 312-9, Determination of Percent Monomer in Polyester Resins (revised 1996), unless the facility maintains records from the manufacturer to document the monomer VOC content of resin and gel coat materials.

If the non-monomer VOC content of a resin or gel coat exceeds five percent, then the excess non-monomer VOC over five percent shall be added to the monomer VOC content.

(b) State Rule 06-096 C.M.R. ch. 162 requires Hinckley to establish a total monomer VOC limit using the following equation for all operations that it elects to utilize the emission averaging method of compliance:

Equation 2[3]

$$Monomer\ VOC\ Limit = 46(M_R) + 159(M_{PG}) + 291(M_{CG}) + 54(M_{TR}) + 214(M_{TG})$$

Where:

Monomer VOC Limit	=	total allowable monomer VOC that can be emitted from the open molding operations included in the average, in kilograms per 12-month period.
M_R	=	mass of production resin used in the past 12 months, excluding any materials that are exempt, in megagrams.
M_{PG}	=	mass of pigmented gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

[2] 06-096 C.M.R. ch. 162, Equation 1
[3] 06-096 C.M.R. ch. 162, Equation 2

M_{CG} = mass of clear gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

M_{TR} = mass of tooling resin used in the past 12 months, excluding any materials that are exempt, in megagrams.

M_{TG} = mass of tooling gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

Hinckley uses the following equations to calculate monomer VOC emission rates for each resin and gel coat for each open molding operation (PV_i for Equation 3) that it elects to utilize the emission averaging method of compliance, where VOC% is the monomer VOC content:

Material	Application Method	Formula
• Production resin • Tooling resin	a. Atomized	a. $0.014 \times (\text{Resin VOC\%})^{2.425}$
	b. Atomized, plus vacuum bagging with roll-out	b. $0.01185 \times (\text{Resin VOC\%})^{2.425}$
	c. Atomized, plus vacuum bagging without roll-out	c. $0.00945 \times (\text{Resin VOC\%})^{2.425}$
	d. Nonatomized	d. $0.014 \times (\text{Resin VOC\%})^{2.275}$
	e. Nonatomized, plus vacuum bagging with roll-out	e. $0.011 \times (\text{Resin VOC\%})^{2.275}$
	f. Nonatomized, plus vacuum bagging without roll-out	f. $0.0076 \times (\text{Resin VOC\%})^{2.275}$
• Pigmented gel coat • Clear gel coat • Tooling gel coat	All methods	$0.445 \times (\text{Gel Coat VOC\%})^{1.675}$
• Filled Resin	All methods	$PV_i \frac{(100 - \%Filler)}{100}$ Where PV_i is the emission rate calculated for the resin before filler is added

The monomer VOC contents of resins and gel coats shall be determined by using SCAQMD Method 312-9, Determination of Percent Monomer in Polyester Resins, revised 1996, unless the facility maintains records from the manufacturer to document the monomer VOC content of resin and gel coat materials.

If the non-monomer VOC content of a resin or gel coat exceeds five percent, then the excess non-monomer VOC over five percent shall be added to the monomer VOC content.

(c) Hinckley uses the following equation to calculate the weighted-average monomer VOC emission rates for each open molding resin and gel coat

operation that it chooses to use the emission averaging method of compliance:

Equation 4[4]

$$PV_{OP} = \frac{\sum_{i=1}^{n}(M_i PV_i)}{\sum_{i=1}^{n}(M_i)}$$

Where:

PV_{OP} = weighted-average monomer VOC emission rate for each open molding operation (PV_R, PV_{PG}, PV_{CG}, PV_{TR}, and PV_{TG}) included in the average, in kilograms of monomer VOC per megagram of material applied.

M_i = mass or resin or gel coat used within an operation in the past 12 months, in megagrams.

PV_i = the monomer VOC emission rate for resin or gel coat used within an operation in the past 12 months, in kilograms of monomer VOC per megagram of material applied. The equations in Table 2 shall be used to compute PV.

(d) Hinckley uses the following equation, comprising of all applicable operations, to demonstrate compliance with the monomer VOC mass emission limit established for operations included within the emission averaging method of compliance:

Equation 3[5]

$$Monomer\ VOC\ emissions = (PV_R)(M_R) + (PV_{PG})(M_{PG}) + (PV_{CG})(M_{CG}) + (PV_{TR})(M_{TR}) + (PV_{TG})(M_{TG})$$

Where:

Monomer VOC Emissions = monomer VOC emissions from open molding operations included in the average, in kilograms per 12-month period.

PV_R = weighted-average monomer VOC emission rate for production resin used in the past 12 months, in kilograms per megagram.

M_R = mass of production resin used in the past 12 months, excluding any materials that are exempt, in megagrams.

PV_{PG} = weighted-average monomer VOC emission rate for pigmented gel coat used in the past 12 months, in kilograms per megagram.

M_{PG} = mass of pigmented gel coat used in the past 12 months, excluding any material that are exempt, in megagrams.

[4] 06-096 C.M.R. ch. 162, Equation 4
[5] 06-096 C.M.R. ch. 162, Equation 3

PV_{CG}	=	weighted-average monomer VOC emission rate for clear gel coat used in the past 12 months, in kilograms per megagram.
M_{CG}	=	mass of clear gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams
PV_{TR}	=	weighted-average monomer VOC emission rate for tooling resin used in the past 12 months, in kilograms per megagram.
M_{TR}	=	mass of tooling resin used in the past 12 months, excluding any materials that are exempt, in megagrams.
PV_{TG}	=	weighted-average monomer VOC emission rate for tooling gel coat used in the past 12 months, in kilograms per megagram.
M_{TG}	=	mass of tooling gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

(3) Cleaning Solvent Standards

Hinckley shall meet the cleaning solvent standards outlined in the following table:

Type of Solvent	Limit
Cleaning solvents used for routine application equipment cleaning	- 5.0% VOC by weight max, or - Shall have a max composite vapor pressure of 0.50 mmHg @68°F
Solvents used to remove cured resin and gel coat from application equipment	- shall use only non-volatile organic compound solvents

[06-096 C.M.R. ch. 162(6)]

(4) Work Practice Standards

All resin and gel coat containers with a capacity equal to or greater than 208 liters (55 gallons), including those used for on-site mixing of putties and polyester resin putties, shall have a cover with no visible gaps in place at all times. This does not apply when materials are being manually added to or removed from a container, or when mixing equipment is being placed or removed from a container. [06-096 C.M.R. ch. 162(7)]

(5) Monitoring and Recordkeeping

Hinckley shall collect and record the following on a monthly basis and maintain at the facility for five years for each operation subject to the chapter:

(a) Total quantity and weighted-average monomer VOC contents of atomized molding production resin, pigmented gel coat, atomized tooling resin, nonatomized tooling resin, and tooling gel;

(b) All calculations completed by the facility for 06-096 C.M.R. ch. 162;

(c) The VOC content (mass percent) of each non-monomer resin and gel coat used;

(d) The VOC content or pressure in mmHg, as applicable, for each cleaning solvent used for routine application equipment cleaning; and

(e) The emission limit established using Equation 2 from 06-096 C.M.R. ch. 162.

(f) Hinckley shall notify the Department if any materials that are non-compliant with this rule are used. A copy of the record showing non-compliance shall be sent to the Department within 30 days following the end of the month in which the use occurs.

[06-096 C.M.R. ch. 162(9) and (10)(A)]

(6) Initial Notification and Compliance Certification

(a) An Initial Notification of Applicability was due to the Department. Hinckley submitted its initial notification on September 24, 2013. [06-096 C.M.R. ch. 162(12)(A)]

(b) Hinckley shall maintain records demonstrating compliance following the completion of the first documented achievement of compliance with the monomer VOC limiting requirements. The Compliance Certification shall include the following information, as applicable for emission averaging:

(i) A description of the compliance method employed;

(ii) A description of the records that document continuing compliance;

(iii) The results of any records that document continuing compliance, including calculations; and

(iv) A statement by the owner or operator of Hinckley as to whether the facility has complied with the requirements of 06-096 C.M.R. ch. 162.

[06-096 C.M.R. ch. 162(12)(B)]

F. Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity, except for no more than five minutes in any one-hour period during which time visible emissions shall not exceed 30% opacity. Compliance shall be determined by an aggregate of the individual fifteen-second opacity observations which exceed 20% in any one hour.

G. General Process Emissions

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis.

H. Annual Emissions

1. Total Annual Emissions

Hinckley shall be restricted to the following annual emissions on a 12-month rolling total basis. The tons per year limits were calculated based on facility-wide VOC/HAP emissions caps, 8,760 hours of operation of Oven #1, and 100 hours of operation of Generator #1:

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM_{10}	SO_2	NO_x	CO	VOC
Oven #1	0.70	0.70	--	1.99	1.15	0.12
Generator #1	--	--	--	0.52	0.86	0.01
Facility Process	--	--	--	--	--	38.87
Total TPY	**0.7**	**0.7**	**--**	**2.5**	**2.0**	**39.0**

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

2. Greenhouse Gases

Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans,* 40 C.F.R. Part 52, Subpart A, § 52.21, *Prevention of Significant Deterioration of Air Quality* rule. Greenhouse gases, as defined in 06-096 C.M.R. ch. 100, are the aggregate group of the following gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes,

greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO_2e).

The quantity of CO_2e emissions from this facility is less than 100,000 tons per year, based on the following:

- the facility's operation limits;
- worst case emission factors from the following sources: U.S. EPA's AP-42, the Intergovernmental Panel on Climate Change (IPCC), and *Mandatory Greenhouse Gas Reporting,* 40 C.F.R. Part 98; and
- global warming potentials contained in 40 C.F.R. Part 98.

No additional licensing actions to address GHG emissions are required at this time.

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM_{10}	25
SO_2	50
NO_x	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

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, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-798-71-C-R/A subject to the following conditions.

Severability. The invalidity or unenforceability of any provision of this License or part thereof 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 M.R.S. § 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. [06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 115]

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S. § 353-A. [06-096 C.M.R. ch. 115]

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 C.F.R. 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 C.F.R. 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.

[06-096 C.M.R. ch. 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 C.F.R. 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.

[06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 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 emissions 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. [06-096 C.M.R. ch. 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. [06-096 C.M.R. ch. 115]

SPECIFIC CONDITIONS

(16) **Oven #1**

A. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Oven #1	PM	0.05	A-824-71-F-A (February 27, 2018), BACT

B. Emissions shall not exceed the following [A-824-71-F-A (February 27, 2018), BACT]:

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Oven #1 LPG	0.16	0.16	--	0.45	0.26	0.03

C. Visible emissions from the oven shall not exceed 10% opacity on a six-minute block average basis. [A-824-71-F-A (February 27, 2018), BACT]

(17) **Generator #1**

A. Generator #1 shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 C.M.R. ch. 115, BPT]

B. Emissions shall not exceed the following [A-824-71-E-A (April 12, 2017), BACT]:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1 (1.05 MMBtu/hr) LPG	0.01	0.01	--	2.38	3.91	0.03

C. Visible emissions from Generator #1 shall not exceed 10% opacity on a six-minute block average basis. [A-824-71-E-A (April 12, 2017), BACT]

D. Generator #1 shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart JJJJ, including the following:

1. Manufacturer Certification
   The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1.

2. Non-Resettable Hour Meter
   A non-resettable hour meter shall be installed and operated on the engine. [40 C.F.R. § 60.4237 and 06-096 C.M.R. ch. 115, BPT]

3. Annual Time Limit for Maintenance and Testing
   a. As an emergency engine, the unit shall be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). The limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written log) of all engine operating hours. [40 C.F.R. § 60.4243(d) and 06-096 C.M.R. ch. 115, BPT]

   b. Hinckley shall keep records that include maintenance conducted on the engine and the hours of operation of the engine recorded through the non-resettable hour meter. Documentation shall include the number of hours the unit operated for emergency purposes, the number of hours the unit operated for non-emergency purposes, and the reason the engine was in operation during each time. [40 C.F.R. § 60.4245(b)]

4. Operation and Maintenance
   The engine shall be operated and maintained according to the manufacturer's written instructions or procedures developed by Hinckley that are approved by the engine manufacturer. Hinckley may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

(18) **Process VOC and HAP Emissions**

A. Emission Limits [06-096 C.M.R. ch. 115, BPT]

Hinckley shall limit emissions from its yacht building process so that entire-facility emissions do not exceed the following on a 12-month rolling total basis:

- 39.0 tons per year of VOC
- 24.9 tons per year of HAP
- 9.9 tons per year of any single HAP

Hinckley shall demonstrate compliance with the annual VOC and HAP emission limits by maintaining records of VOC, total HAP, and single HAP emissions. Records shall be kept on a monthly and 12-month rolling total basis and shall include the following recordkeeping and calculations:

1. Single HAP Emissions

Single HAP emissions shall be calculated and recorded as a total value for the facility for each HAP. The values from the open molding and closed molding processes shall be calculated in accordance with the following:

a. Open Molding Styrene and Methyl Methacrylate (MMA) Emissions from Polyester/Vinylester Resins and Gelcoats

(1) Hinckley shall record the amount of each relevant resin, filled resin, and gelcoat used for open molding operations and shall categorize them based on application method as applicable in the most current *Unified Emission Factors for Open Molding of Composites (*UEF model*).*

(2) Hinckley shall record the styrene and methyl methacrylate concentrations of each resin, filled resin, and gelcoat used for open molding operations, as applicable.

(3) Hinckley shall use applicable equations in the UEF model to calculate styrene and methyl methacrylate emission rates. Calculated emission rates shall be used to calculate total styrene and methyl methacrylate emissions from all molding operations.

(4) Styrene and methyl methacrylate emissions from open molding operations shall be determined using the following mass balance equation for each material:

$$Styrene\ or\ MMA\ Emissions = Mass\ Applied * Styrene\ or\ MMA\ Emission\ Rate$$

(5) Hinckley shall calculate the emissions of other single HAP as they appear on the UEF model and are relevant to the materials that Hinckley uses.

b. Closed Molding Styrene and Methyl Methacrylate Emissions from Polyester/Vinylester Resins and Gelcoats

(1) Hinckley shall record the amount of each relevant resin and filled resin used for closed molding operations.

(2) Hinckley shall record the styrene concentrations of each resin and filled resin used for closed molding operations.

(3) Styrene emissions from closed molding operations shall be determined using the following mass balance equation for each material:

$$Monthly\ Emissions = 0.01 * Mass\ Applied * Styrene\ Content$$

Where the mass applied of each material is on a monthly basis and the styrene content is as weight percent.

(4) Hinckley shall calculate the emissions of other single HAP in closed molding processes (using the above closed molding calculation methods) as they appear on the UEF model and are relevant to the materials that Hinckley uses.

2. Total VOC and Total HAP Emissions from all Process Operations

a. Hinckley shall record the total VOC and HAP content of each VOC and/or HAP containing material used in its boat manufacturing process.

b. Except as noted below*, Hinckley shall calculate total VOC and total HAP emissions using the following mass balance for <u>each</u> VOC and/or HAP containing material used, including but not limited to resins, gelcoats, adhesives, paints, cleaning solvents, and catalysts:

$$Monthly\ Emissions = (A - B) * VOC\ or\ HAP\ Content$$

Where,

A	=	Monthly facility purchases (mass)
B	=	Monthly quantity shipped offsite (mass)

* <u>Closed Molding:</u>
For materials used in closed molding operations, Hinckley may assume the 1% release of all VOC and HAP and may calculate total VOC and total HAP emissions by using the following equation for each applicable material, utilizing the same variables as above:

$$Monthly\ Emissions = (A - B) * VOC\ or\ HAP\ Content * 0.01$$

*<u>Single HAP Containing Materials:</u>
Hinckley may elect to utilize the open or closed molding Styrene and MMA emissions calculated pursuant to the Single HAP requirements of this license, as applicable, and complete the material balance for the remaining VOC or HAP contents of each material.

(19) **06-096 C.M.R. ch. 159 Requirements**

Hinckley shall comply with all current and applicable requirements contained in *Control of Volatile Organic Compounds from Adhesives and Sealants,* 06-096 C.M.R. ch. 159.

(20) **06-096 C.M.R. ch. 162 Requirements**

Hinckley shall meet the requirements listed below for 06-096 C.M.R. ch. 162 as long as it is considered subject. If Hinckley provides justification to the Department that it is no longer subject to this rule during the term of this license, the requirements below will no longer apply.

A. Monomer VOC tracking:

1. Hinckley shall comply with the applicable emission limitations within this Chapter using one of the following options for each operation:

   a. The use of low monomer VOC content resins and gel coats;
   b. Emission averaging among different operations; or
   c. The use of add-on emission control devices.

   Hinckley has chosen to establish limits and demonstrate compliance for all operations through the emission averaging option. Therefore, only the requirements for this option are provided in this condition. If Hinckley chooses to comply with Chapter 162 using a different option (a or c above), then the specific requirements of Chapter 162 for that option will apply (as listed in the Findings of Fact).

   Operations are defined as the following:
   - Production resin application (Atomized and Nonatomized)
   - Tooling resin application (Atomized and Nonatomized)
   - Pigmented gel coat application
   - Clear gel coat application
   - Tooling gel coat application

   [06-096 C.M.R. ch. 162(3)]

2. Hinckley shall establish a monomer VOC limit, on a 12-month rolling average basis, for all open molding operations that it elects to utilize the emission averaging method of compliance, using the following equation:

Equation 2

$$Monomer\ VOC\ Limit = 46(M_R) + 159(M_{PG}) + 291(M_{CG}) + 54(M_{TR}) + 214(M_{TG})$$

Where:

Monomer VOC Limit	=	total allowable monomer VOC that can be emitted from the open molding operations included in the average, in kilograms per 12-month period.

M_R = mass of production resin used in the past 12 months, excluding any materials that are exempt, in megagrams.

M_{PG} = mass of pigmented gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

M_{CG} = mass of clear gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

M_{TR} = mass of tooling resin used in the past 12 months, excluding any materials that are exempt, in megagrams.

M_{TG} = mass of tooling gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

[06-096 C.M.R. ch. 162(3)(B)(1)]

3. Hinckley shall use the following formulas to calculate monomer VOC emission rates for each resin and gel coat for each open molding operation (PV_i for Equation 3) that it elects to utilize the emission averaging method of compliance, where VOC% is the monomer VOC content:

Table 2

Material	Application Method	Formula
• Production resin • Tooling resin	a. Atomized	a. $0.014 \times (\text{Resin VOC\%})^{2.425}$
	b. Atomized, plus vacuum bagging with roll-out	b. $0.01185 \times (\text{Resin VOC\%})^{2.425}$
	c. Atomized, plus vacuum bagging without roll-out	c. $0.00945 \times (\text{Resin VOC\%})^{2.425}$
	d. Nonatomized	d. $0.014 \times (\text{Resin VOC\%})^{2.275}$
	e. Nonatomized, plus vacuum bagging with roll-out	e. $0.011 \times (\text{Resin VOC\%})^{2.275}$
	f. Nonatomized, plus vacuum bagging without roll-out	f. $0.0076 \times (\text{Resin VOC\%})^{2.275}$
• Pigmented gel coat • Clear gel coat • Tooling gel coat	All methods	$0.445 \times (\text{Gel Coat VOC\%})^{1.675}$
• Filled Resin	All methods	$PV_i \frac{(100 - \%Filler)}{100}$ Where PV_i is the emission rate calculated for the resin before filler is added

[06-096 C.M.R. ch. 162(3)(B)(3)]

The monomer VOC contents of resins and gel coats shall be determined by using SCAQMD method 312-9, Determination of Percent Monomer in Polyester resins, revised 1996, unless the facility maintains records from the manufacturer to document the monomer VOC content of resin and gel coat materials.

If the non-monomer VOC content of a resin or gel coat exceeds five percent, then the excess non-monomer VOC over five percent shall be added to the monomer VOC content.
[06-096 C.M.R ch. 162(5)]

4. Hinckley shall use the following equation to calculate the weighted-average monomer VOC emission rates for each open molding resin and gel coat operation:

Equation 4

$$PV_{OP} = \frac{\sum_{i=1}^{n}(M_i PV_i)}{\sum_{i=1}^{n}(M_i)}$$

Where:

PV_{OP} = weighted-average monomer VOC emission rate for each open molding operation (PV_R, PV_{PG}, PV_{CG}, PV_{TR}, and PV_{TG}) included in the average, in kilograms of monomer VOC per megagram of material applied.

M_i = mass or resin or gel coat used within an operation in the past 12 months, in megagrams.

PV_i = the monomer VOC emission rate for resin or gel coat used within an operation in the past 12 months, in kilograms of monomer VOC per megagram of material applied. The equations in Table 2 shall be used to compute PV.

[06-096 C.M.R. ch. 162(3)(B)(3)]

5. Hinckley shall use the following equation to demonstrate compliance with the monomer VOC mass emission limit established for operations included within the emission averaging method of compliance:

Equation 3

$$Monomer\ VOC\ emissions = (PV_R)(M_R) + (PV_{PG})(M_{PG}) + (PV_{CG})(M_{CG}) + (PV_{TR})(M_{TR}) + (PV_{TG})(M_{TG})$$

Where:

Monomer VOC Emissions = monomer VOC emissions from open molding operations included in the average, in kilograms per 12-month period.

PV_R = weighted-average monomer VOC emission rate for production resin used in the past 12 months, in kilograms per megagram.

M_R = mass of production resin used in the past 12 months, excluding any materials that are exempt, in megagrams.

PV_{PG} = weighted-average monomer VOC emission rate for pigmented gel coat used in the past 12 months, in kilograms per megagram.

M_{PG} = mass of pigmented gel coat used in the past 12 months, excluding any material that are exempt, in megagrams.

PV_{CG} = weighted-average monomer VOC emission rate for clear gel coat used in the past 12 months, in kilograms per megagram.

M_{CG} = mass of clear gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams

PV_{TR} = weighted-average monomer VOC emission rate for tooling resin used in the past 12 months, in kilograms per megagram.

M_{TR} = mass of tooling resin used in the past 12 months, excluding any materials that are exempt, in megagrams.

PV_{TG} = weighted-average monomer VOC emission rate for tooling gel coat used in the past 12 months, in kilograms per megagram.

M_{TG} = mass of tooling gel coat used in the past 12 months, excluding any materials that are exempt, in megagrams.

[06-096 C.M.R. ch. 162(3)(B)(2)]

B. Cleaning Solvent Standards

1. Hinckley shall meet the cleaning solvent standards outlined in the following table:

Type of Solvent	Limit
Cleaning solvents used for routine application equipment cleaning	- 5.0% VOC by weight max, or - Shall have a max composite vapor pressure of 0.50 mmHg @68°F
Solvents used to remove cured resin and gel coat from application equipment	- shall use only non-VOC containing solvents

[06-096 C.M.R. ch. 162(6)]

C. Work Practice Standards

All resin and gel coat containers with a capacity equal to or greater than 208 liters (55 gallons), including those used for on-site mixing of putties and polyester resin putties, shall have a cover in place at all times with no visible gaps. This does not apply when materials are being manually added to or removed from a container, or when mixing equipment is being placed or removed from a container. [06-096 C.M.R. ch. 162(7)]

D. Monitoring, Recordkeeping, and Reporting

1. Hinckley shall maintain all records for Chapter 162 presented in Specific Condition (20) on a monthly basis and at the facility for five years[6] for each operation subject to the chapter.

2. In addition to the recordkeeping requirements addressed in Standard Condition (15), Hinckley shall collect and record the following on a monthly basis and maintain at the facility for five years[7] for each operation subject to Chapter 162:

   a. All calculations completed by the facility for 06-096 C.M.R. ch. 162; and
   b. The emission limit established using Equation 2 from 06-096 C.M.R ch. 162.

3. Hinckley shall notify the Department if any materials that are non-compliant with the rule are used. A copy of the record showing non-compliance shall be sent to the Department within 30 days following the end of the month in which the use occurs.

[06-096 C.M.R. ch. 162(9) and (10)(A)]

E. Compliance Certification

Hinckley shall maintain records demonstrating compliance following the completion of the first documented achievement of compliance with the monomer VOC limiting requirements. The Compliance Certification shall include the following information, as applicable for emission averaging:

1. A description of the compliance option employed;
2. A description of the records that document continuing compliance;
3. The results of any records that document continuing compliance, including calculations; and
4. A statement by the owner or operator of Hinckley as to whether the facility has complied with the requirements.

[06-096 C.M.R. ch. 162(12)(A)]

(21) **Work Practice Standards**

Hinckley shall comply with the following work practice standards: [06-096 C.M.R. ch. 115, BPT]:

A. To minimize VOC and HAP emissions from resin application, Hinckley shall use the closed mold method (i.e., vacuum infusion) whenever this technology has proven to reliably work and be cost effective. For applications when the closed mold method is

[6] Standard Condition (8) requires that all records for the license be kept for 6 years.
[7] Standard Condition (8) requires that all records for the license be kept for 6 years.

not feasible or cost effective, Hinckley shall use the mechanical, non-atomized, or airless spray gun technique for resin application in all but the manufacture of small and/or irregular parts.

B. Hinckley shall promote good housekeeping practices (closed lids, proper storage, etc.) and ensure that all VOC / volatile HAP containing materials are handled properly to minimize emissions. The procedure shall ensure that all VOC and/or volatile HAP containers are properly sealed when not in immediate use and that all of the containers are handled in a manner to reduce the chance of spills.

C. Hinckley shall continue research and manufacturing test trials of pollution prevention technologies (low styrene resins, closed mold systems, etc.) and shall document changes and improvements made to reduce VOC and HAP emissions as they occur. An annual report documenting the research and test trial results from the previous year shall be available for inspection by the Department upon request.

D. Hinckley shall control PM emissions from any surface coating process that vents to the ambient air via vent or duct through the use of a particulate filter or dust collection equipment such that visible emissions do not exceed 10% opacity on a six-minute block average basis.

E. Hinckley shall control PM emissions from any cutting, buffing, grinding, or sanding processes that vent to the ambient air via vent or duct through the use of a particulate filter or dust collection equipment such that visible emissions do not exceed 10% opacity on a six-minute block average basis.

F. Hinckley shall use fabric filters to control PM emissions from surface finishing operations and buffing activities. Visible emissions from each process are limited to 10% opacity on a 6-minute block average basis.

G. Hinckley shall reduce the potential for fugitive PM emissions from any process conducted outside by limiting such activity to periods of calm winds or through the use of a shroud or wind curtain.

H. Hinckley shall keep records of filter maintenance and filter changes for the spray booth as appropriate.

(22) **Fugitive Emissions**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity, except for no more than five minutes in any one-hour period during which time visible emissions shall not exceed 30% opacity. Compliance shall be determined by an aggregate of the individual fifteen-second opacity observations which exceed 20% in any one hour. [06-096 C.M.R. ch. 115, BPT]

(23) **General Process Sources**

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

(24) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 C.M.R. ch. 137, the licensee shall annually report to the Department, in a format prescribed by the Department, the information necessary to accurately update the State's emission inventory. The emission statement shall be submitted as specified by the date in 06-096 C.M.R. ch. 137.

(25) Hinckley shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S. § 605).

DONE AND DATED IN AUGUSTA, MAINE THIS 4 DAY OF May , 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
PAUL MERCER, COMMISSIONER

The term of this license shall be ten (10) years from the signature date above.

[Note: If a renewal application, determined as complete by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 M.R.S. § 10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the license renewal application.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 02/28/2014
Date of application acceptance: 03/12/2014

Date filed with the Board of Environmental Protection:

This Order prepared by Colby Fortier-Brown, Bureau of Air Quality.

Filed
MAY 4 2018
State of Maine
Board of Environmental Protection