

# DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

## DIVISION OF AIR AND WASTE MANAGEMENT

Statutory Authority: 7 Delaware Code, Chapter 60 (7 Del.C., Ch. 60)  
7 DE Admin. Code 1124

### FINAL

#### Secretary's Order No. 2007-A-0011

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") under 29 Del.C. §§8001 et seq., 29 Del.C. §§10111 et seq. and 7 Del.C. §6010(a), the following findings, reasons and conclusions are entered as an Order of the Secretary in the above-referenced rulemaking proceeding.

On January 12, 2001, the Department opened a proposed rulemaking proceeding in Start Action Notice ("SAN") 2000-23, which was to develop a proposed regulation for the purpose of regulating the air emissions of volatile organic compounds ("VOCs") released during lightering operations in Delaware's waters. The purpose of the proposed regulation was to regulate the release of harmful VOCs air emissions during crude oil lightering, which is the transfer of cargo from larger ships to smaller ships in order to allow the larger ships to deliver the cargo to shallower locations along the Delaware Bay. The VOCs released during crude oil lightering are a major source of VOCs released in Delaware. VOCs are a major source of air pollution, particularly in the formation of ozone. Ozone poses a significant risk to human health and the environment. Delaware also is within a federal designated ozone non-attainment area, which means that Delaware must take regulatory steps to reduce ozone in order to comply with the federal Clean Air Act and its regulations. Many of the VOCs are classified as hazardous air pollutants ("HAPs"), including the known carcinogens benzene and polycyclic organic matter.

The Department's experts within the Division of Air and Waste Management, Air Quality Management Section ("AQMS") drafted a proposed regulation based upon reasonably available control technology in vapor balancing during lightering. The proposed regulation was prepared with the input of interested persons, including members from the lightering industry, petroleum/refining interests, environmental organizations and public health associations. The Department published the proposed regulation in the November 1, 2006 *Delaware Register of Regulations* along with notice of the withdrawal of a prior proposed regulation, which had been published in the August 1, 2001 *Delaware Register of Regulations*. The Department held a public hearing on the November 1, 2006 proposed regulations on December 4, 2006.

The Department's presiding hearing officer, Robert P. Haynes, prepared a Report, dated March 23, 2007, a copy of which is attached hereto and incorporated herein. The Report recommended approval of the regulation, as set forth in Appendix A of the Report, as a final regulation. The Report reviewed the public comments, and the Department's technical response to the comments prepared by experts within AQMS.

I find that the record developed during the public hearing process, including the Department's response, provides ample support for the Department to adopt this final regulation. The justification is that it will result in cleaner air quality, which in turn will improve human health and the environment in Delaware. The regulation approved by this Order will result in the reduction of VOCs released during crude oil lightering because uncontrolled releases will be reduced from its current unregulated releases. Crude oil lightering is one of the major sources of the VOCs and HAPs in Delaware, with the annual release of approximately 1,900 tons of VOCs and 150 tons of HAPs. The air release of VOCs is a known cause of the formation of ozone, which also is proven to be a major risk factor to human health, particularly the elderly, children and others with an impaired ability to breathe.

The regulation will reduce the amount of lightering that is done without vapor balancing equipment, or uncontrolled lightering. The regulation will require the increased use of vapor balancing equipment over a reasonable time period that the industry has indicated is acceptable to allow the changes to be made to the vessels or to acquire newer vessels. The first regulatory deadline will be an 80% limit to uncontrolled lightering out of all crude oil lightering volumes by May 1, 2008. This level will reduce to 61% by May 1, 2010, and again be reduced to 43% by May 1, 2012. Thus, the release of VOCs will be reduced by 57% in the next five years.

The final regulation also bars uncontrolled releases during most ozone action days in order to avoid adding

more air pollution on the days when human health is most adversely affected by poor air quality caused by ozone. The regulation is based upon sound scientific theory and the application of available technology that can be installed in order to reduce a major source of air pollution.

In conclusion, the following findings and conclusions are entered:

1. The Department, acting through this Order of the Secretary and 29 Del.C. §10118(d), hereby approved the final regulation in Appendix A to the Report,
2. The Department shall have this Order published in the *Delaware Register of Regulations* and in newspapers in the same manner as the notice of the proposed regulation;
3. The Department shall provide notice to the persons affected by the Order, as determined by the Department, including all those who submitted comments to the Department, who otherwise participated in the public hearing, and who requested to receive notice of all actions on proposed regulations.

John A. Hughes, Secretary

## 1124 Control of Volatile Organic Compound Emissions (Formerly Reg. No. 24)

### 1.0 Reserved for Section

### 2.0 Definitions.

1/11/02

For the purpose of this regulation, the following definitions apply:

**"Actual Emissions"** means the quantity VOCs emitted from a source during a particular time period.

**"As Applied"** means including any dilution solvents added before application of the coating.

**"Basecoat"** means a pigmented topcoat that is the first coat applied as part of a multistage topcoat system.

**"Bulk Gasoline Plant"** means a gasoline storage and distribution facility with an average daily throughput of 76,000 liters (L) (20,000 gallons [gal]) of gasoline or less on a monthly average.

**"Bulk Gasoline Terminal"** means a gasoline storage facility that receives gasoline from refineries, delivers gasoline to bulk gasoline plants or to commercial or retail accounts, and has a daily throughput of more than 76,000 L (20,000 gal) of gasoline on a monthly average.

**"Capture Efficiency"** means the weight per unit time of VOC entering a capture system and delivered to a control device divided by the weight per unit time of total VOC generated by a source of VOC, expressed as a percentage.

**"Capture System"** means all equipment (including, but not limited to, hoods, ducts, fans, booths, ovens, dryers, etc.) that contains, collects, and transports an air pollutant to a control device.

**"Carbon Absorber"** means an add-on control device that uses activated carbon to absorb VOCs from a gas stream.

**"Carbon Adsorption System"** means a carbon adsorber with an inlet and outlet for exhaust gases and a system to regenerate the saturated adsorbent

**"Clearcoat"** means a topcoat that contains no pigments or only transparent pigments and that is the final coat applied as part of a multistage topcoat system.

**"Coating"** means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealants, adhesives, inks, maskants, and temporary protective coatings.

**"Coating Unit"** means a series of one or more coating applicators and any associated drying area and/or oven wherein a coating is applied, dried, and/or cured. A coating unit ends at the point where the coating is dried or cured, or prior to any subsequent application of a different coating. It is not necessary to have an oven or a flashoff area in order to be included in this definition.

**"Continuous Vapor Control System"** means a vapor control system that treats vapors displaced from tanks during filling on a demand basis without intermediate accumulation.

**"Control Device"** means equipment (such as an incinerator or carbon adsorber) used to reduce, by destruction or removal, the amount of air pollutant(s) in an air stream prior to discharge to the ambient air.

**"Control System"** means a combination of one or more capture system(s) and control device(s) working

in concert to reduce discharges of pollutants to the ambient air.

**"Day"** means a period of 24 consecutive hours beginning at midnight local time, or beginning at a time consistent with a facility's operating schedule.

**"Destruction Or Removal Efficiency"** means the amount of VOC destroyed or removed by a control device expressed as a percent of the total amount of VOC entering the device.

**"Double Block-and-bleed System"** means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

**"Exempt Compounds"** means any of the compounds listed in Regulation 1, Section 2 - Definitions, "Volatile Organic Compounds," which have been determined to have negligible photochemical reactivity.

For determining compliance with emission limits, VOCs will be measured according to the procedures in Methods 25 and 25A of Appendix A of 40 CFR, Part 60, and the procedures and equations in '60.755. Where such a method also measures compounds with negligible photochemical reactivity, an owner or operator may exclude these negligibly-reactive compounds when determining compliance with an emission standard. However, the Department may require such owner or operator, as a precondition to excluding these compounds for purposes of determining compliance, to provide monitoring methods and monitoring results demonstrating, to the satisfaction of the Department, the amount of negligibly-reactive compounds in the sources emissions.

In addition to the procedures for requesting a satisfactory compliance determination, where the Department proposes to allow the use of a test method for excluding negligibly-reactive compounds that is different or not specified in the approved SIP, such change shall be submitted to the U.S. EPA for approval as part of a SIP revision.

**"External Floating Roof"** means a cover over an open-top storage tank consisting of a double deck or pontoon single deck that rests upon and is supported by the volatile organic liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

**"Facility"** means all of the pollutant-emitting activities, excluding pollutant-emitting activities from mobile sources, that are located on one (1) or more contiguous or adjacent properties, and are under the control of the same person (or person under common control).

**"First Attempt At Repair"** means to take rapid action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.

**"Flashoff Area"** means the space between the coating application area and the oven.

**"Gasoline Tank Truck"** means a delivery tank truck used at bulk gasoline plants, bulk gasoline terminals, or gasoline dispensing facilities that is loading or unloading gasoline or that has loaded or unloaded gasoline on the immediately previous load.

**"Gloss Flattener"** means a low-gloss coating that is formulated to eliminate glare on the interior surfaces of a vehicle for safety purposes, as specified under the U.S. Department of Transportation Motor Vehicle Safety Standards.

**"Heavy-duty Truck"** means any motor vehicle rated at greater than 3,864 kg (8,500 lb) gross weight designed primarily to transport property.

**"Incinerator"** means a combustion apparatus in which solid, semisolid, liquid, or gaseous combustible wastes are ignited and burned and from which the solid and gaseous residues contain little or no combustible material.

**"Intermittent Vapor Control System"** means a vapor control system that employs an intermediate vapor holder to accumulate vapors displaced from tanks during filling. The control device treats the accumulated vapors only during automatically controlled cycles.

**"Internal Floating Roof"** means a cover or roof in a fixed-roof tank that rests upon or is floated upon, the liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and the tank shell.

**"Knife Coating"** means the application of a coating material to a substrate by means of drawing the substrate beneath a knife that spreads the coating evenly over the full width of the substrate.

**"Leak"** means a VOC emission indicated by an instrument calibrated according to Method 21 of 40 CFR, Part 60, Appendix A, using zero air (less than 10 parts per million [ppm] of hydrocarbon in air) and a mixture of methane or n-hexane and air at a concentration of about, but less than, 10,000 ppm methane or n-hexane.

**"Lease Custody Transfer"** means the transfer of produced crude oil or condensate, after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

**"Liquid-mounted Seal"** means a primary seal mounted in continuous contact with the liquid between the tank wall and the floating roof around the circumference of the tank.

**"Loading Rack"** means an aggregation or combination of gasoline loading equipment arranged so that all loading outlets in the combination can be connected to a tank truck or trailer parked in a specified loading space.

**"Lower Explosive Limit"** (LEL) means the concentration of a compound in air below which a flame will not propagate if the mixture is ignited.

**"Maximum Theoretical Emissions"** means the quantity of VOC that theoretically could be emitted by a source without control devices based on the design capacity or maximum production capacity of the source and 8,760 hours of operation per year. The design capacity or maximum production capacity includes use of coatings and inks with the highest VOC content used in practice by the source for the 2 preceding years.

**"Maximum True Vapor Pressure"** means the equilibrium partial pressure exerted by a stored liquid at the temperature equal to:

- for liquids stored above or below the ambient temperature, the highest calendar-month average of the liquid storage temperature, or,
- for liquids stored at the ambient temperature, the local maximum monthly average temperature as reported by the National Weather Service. This pressure shall be determined by one of the following:

• In accordance with methods described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From External Floating Roof Tanks."

• By using standard reference texts.

• By ASTM D2879-83.

• By any other method approved by the Department as part of the State Implementation Plan (SIP) Revision.

**"Multicomponent Coating"** means a coating which is packaged in two or more parts, which parts are combined before application, and where a coreactant from one part of the coating chemically reacts, at ambient conditions, with a coreactant from another part of the coating.

**"Open-ended Valve Or Line"** means any valve, except safety relief valves, having one side of the valve seat in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

**"Organic Compound"** means any carbon-containing chemical compound excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

**"Oven"** means a chamber which is used to bake, cure, polymerize, and/or dry a coating.

**"Overall Emission Reduction Efficiency"** means the weight per unit time of VOC removed or destroyed by a control device divided by the weight per unit time of VOC generated by a source, expressed as a percentage. The overall emission reduction efficiency can also be calculated as the product of the capture efficiency and the control device destruction or removal efficiency.

**"Owner or Operator"** means any person who owns, leases, controls, operates or supervises a facility, a source, or air pollution control or monitoring equipment.

**"Person"** means any individual, partnership, copartnership, firm, company, corporation, association, joint stock company, trust, estate, political subdivision, or any other legal entity, or their legal representative, agent, or assigns.

**"Petroleum"** means the crude oil removed from the earth and the oils derived from tar sands, shale and coal.

**"Petroleum Liquid"** means petroleum condensate, and any finished or intermediate products manufactured in a petroleum refinery.

**"Plastisol"** means a coating made of a mixture of finely divided resin and a plasticizer. Plastisol is applied as a thick gel that solidifies when heated.

**"Press-Ready Ink"** means the ink, as applied to the substrate, after all solvents and diluents have been added.

**"Pressure Release"** means the emission of materials resulting from system pressure being greater than set pressure of the pressure relief device.

**"Primer"** means any coating applied prior to the application of a topcoat or color coat for the purposes of surface preparation, corrosion resistance, adhesion, and color uniformity.

**"Process Unit Shutdown"** means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare

equipment and technically feasible bypassing of equipment without stopping production are not process unit shutdowns.

**"Reid Vapor Pressure"** means the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids, except liquified petroleum gases, as determined by ASTM D323-82.

**"Repaired"** means that equipment is adjusted, or otherwise altered, in order to eliminate a leak as indicated by one of the following: an instrument reading of 10,000 ppm or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.

**"Roll Coating"** means the application of a coating material to a moving substrate by means of hard rubber, elastomeric, or metal rolls.

**"Rotogravure Coating"** means the application of a coating material to a substrate by means of a roll coating technique in which the pattern to be applied is recessed relative to the non-image area, and the coating material is picked up in these recessed areas and is transferred to the substrate.

**"Shutdown"** means the cessation of operation of a facility or of its emission control or emission monitoring equipment.

**"Source"** means any building, structure, equipment (excluding mobile equipment temporarily in place), or installation that directly or indirectly releases or discharges, or has the potential to release or discharge, VOCs into the atmosphere.

**"Stage I Vapor Recovery System"** means the control of gasoline vapor from any delivery vessel into any stationary storage vessel, where the vapor displaced by the liquid gasoline is returned to the delivery vessel and transported to the refinery.

**"Stage II Vapor Recovery System"** means a system that controls the emissions of gasoline vapor at the vehicle fill-pipe, where the vapor is captured and returned to a vapor-tight storage tank, or is destroyed; which achieves an overall control efficiency of at least 95%.

**"Standard Conditions"** means a temperature of 20° C (68° F) and pressure of 760 mm Hg (29.92 in. Hg).

**"Startup"** means the setting in operation of a source or of its emission control or emission monitoring equipment.

**"Storage Vessel"** means each tank, reservoir or container used for the storage of Volatile Organic Liquids, but does not include:

- Frames, housing, auxiliary supports or other components that are not directly involved in the containment of liquids or vapors; or
- Subsurface caverns or porous rock reservoirs.

**"Submerged Fill"** means the method of filling a delivery vessel or storage vessel where product enters within 150 millimeters (mm) (5.9 inches [in.]) of the bottom of the delivery or storage vessel. Bottom filling of delivery and storage vessels is included in this definition.

**"Substrate"** means the surface onto which a coating is applied or into which a coating is impregnated.

**"Throughput"** means the amount of gasoline dispensed at a gasoline dispensing facility during a calendar month after November 15, 1990.

**"Transfer Efficiency"** means the ratio of the amount of coating solids adhering to the object being coated to the total amount of coating solids used in the application process, expressed as a percentage.

**"Vapor Collection System"** means all piping, seals, hoses, connections, pressure-vacuum vents, and other equipment between the gasoline tank truck and the vapor processing unit and/or the storage tanks and vapor holder.

**"Vapor Control System"** means a system that limits or prevents release to the atmosphere of organic compounds in the vapors displaced from a tank during the transfer of gasoline.

**"Vapor-mounted Seal"** means a primary seal mounted so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface and the floating roof.

**"Vapor Recovery System"** means a vapor-gathering system capable of collecting VOC vapors and gases emitted during the operation of any transfer, storage, or process equipment.

**"Vapor-tight"** means equipment that allows no loss of vapors. Compliance with vapor-tight requirements can be determined by checking to ensure that the concentration at a potential leak source is not equal to or greater than 100 percent of the LEL when measured with a combustible gas detector, calibrated with propane, at a distance of 2.54 centimeters (cm) (1 in.) from the source.

**"Vapor-tight Gasoline Tank Truck"** means a gasoline tank truck that has demonstrated within the 12 preceding months that its product delivery tank will sustain a pressure change of not more than 75 mm (3.0 in.) of water within 5 minutes (min) after it is pressurized to 450 mm (18 in.) of water; or when evacuated to 150 mm (5.9 in.) of water, the same tank will sustain a pressure change of not more than 75 mm (3.0 in.) of water within 5 min. This capability is to be demonstrated using the test procedures specified in Method 27 of Appendix A of 40 CFR, Part 60 (July 1, 1992).

**"Volatile Organic Liquid"** (VOL) means any organic liquid which can emit any Volatile Organic Compound into the atmosphere (see definition of "Volatile Organic Compound").

**"Volatile Organic Compound"** (VOC) means any carbon-containing compound excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate, which participates in atmospheric photochemical reactions. This includes any organic compounds other than those defined as "Exempt Compounds", which have been determined to have negligible photochemical reactivity (see definition of "Exempt Compounds"). In addition to the procedures for requesting a satisfactory compliance demonstration, where the Department proposes to allow the use of a test method for excluding negligibly reactive compounds that is different from or not specified in the approved SIP, such change shall be submitted to the Environmental Protection Agency (U.S. EPA) for approval as part of a SIP Revision.

**"Web Coating Line"** means all of the coating applicator(s), drying area(s), or oven(s), located between an unwind station and a rewind station, that are used to apply coating onto a continuous strip of substrate (the web). A web coating line need not have a drying oven.

**5 DE Reg. 1478 (1/1/02)**

**3.0 Reserved**

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## **10.0 Aerospace Coatings**

### **10.1 Applicability.**

10.1.1 Except as provided for in 10.1.2 and 10.1.3, this Section applies to any owner or operator of any aerospace manufacturing or rework facility that conducts any of the following operation(s):

10.1.1.1 hand-wipe cleaning;

10.1.1.2 spray gun cleaning;

10.1.1.3 flush cleaning;

10.1.1.4 primer, topcoat, self-priming topcoat, and specialty coating application;

10.1.1.5 the depainting of the outer surface of aerospace vehicles (except for depainting parts or units normally removed during depainting);

10.1.1.6 Type I or Type II chemical milling maskant application; and

10.1.1.7 VOC handling and storage.

10.1.2 Except for the requirements in subsection 10.3.8, this Section does not apply to the following operations in any aerospace manufacturing or rework facility:

10.1.2.1 Chemical milling;

10.1.2.2 Metal finishing;

10.1.2.3 Electrodeposition (except for the electro-deposition of paints); and

10.1.2.4 Composite processing operations (except for cleaning and coating of composite parts or components that become part of an Aerospace vehicle or component as well as composite tooling that comes in contact with such composite parts or components prior to cure).

10.1.3 The requirements of this Section do not apply to aerospace manufacturing or rework facilities whose plant-wide, actual emissions from the operations in section 10.1.1 without control devices are less than 6.8 kilograms (kg) (15 pounds [lbs]) of volatile organic compounds (VOCs) per day.

10.1.4 Existing sources affected by this Section shall comply with the provisions of this Section on and after the effective date of this Section, except for the requirements of section 10.3.6.2 and 10.3.7.

Existing sources affected by this Section shall comply with the requirements of section 10.3.6.2 and 10.3.7 beginning as soon as practicable, but no later than the date one year after the effective date of this Section. New, modified, or reconstructed sources affected by this Section shall comply with the provisions of this Section on and after startup. Notwithstanding section 1.5 of Regulation 24, any owner or operator currently permitted under Regulation 2 and/or Regulation 30 to operate an aerospace manufacturing or rework facility shall submit to the Department an application to amend the current permit and to comply with the provisions of this Section, pursuant to Regulation 2.0 and/or Regulation 30.0, as applicable.

10.1.5 Any facility that becomes or is currently subject to the provisions of this Section by exceeding the applicability threshold in section 10.1.1.3 shall remain subject to these provisions even if its emissions later fall below the applicability threshold.

10.1.6 Any facility that is currently subject to a state or federal rule promulgated pursuant to the Clean Air Act Amendments of 1977 by exceeding an applicability threshold is and shall remain subject to these provisions, even if its throughput or emissions later fall below the applicability threshold.

10.2 Definitions. As used in this Section, all terms not defined herein shall have the meaning given them in the November 15, 1990 Clean Air Act Amendments (CAAA), or in Section 2.0 of Regulation 24 of the State of Delaware "Regulations Governing the Control of Air Pollution".

**"Ablative Coating"** means a specialty coating that chars when exposed to open flame or extreme temperatures, as would occur during the failure of an engine casing or during aerodynamic heating. The ablative char surface serves as an insulation barrier, protecting adjacent components from the heat or open flame.

**"Adhesion Promoter"** means a very thin specialty coating applied to a substrate to promote wetting and form a chemical bond with the subsequently applied material.

**"Adhesive Bonding"** means the joining together of two or more metal parts, such as the parts of a honeycomb core. The surfaces to be bonded are first coated with an adhesive bonding primer to promote adhesion and protect from subsequent corrosion. Structural adhesives are applied as either a thin film or as a paste, and can be oven cured or cured in an autoclave.

**"Adhesive Bonding Primer"** means a specialty coating that is applied in a thin film to aerospace components for the purpose of corrosion inhibition and increased adhesive bond strength by attachment. There are two categories of adhesive bonding primers: primers with a design cure at 250oF or below and primers with a design cure above 250oF.

**"Aerospace Manufacturing Or Rework Facility"** means a commercial, civil, or military facility that produces in any amount an aerospace vehicle or component, or a commercial, civil, or military facility that reworks (or repairs) any aerospace vehicle or component.

**"Aerospace Vehicle Or Component"** means any fabricated part, processed part, assembly of parts, or completed unit of any aircraft including, but not limited to, airplanes, helicopters, missiles, rockets, and space vehicles.

**"Aircraft Fluid System"** means those systems that handle hydraulic fluids, fuel, cooling fluids, or oils.

**"Aircraft Transparency"** means the aircraft windshield, canopy, passenger windows, lenses and other components that are constructed of transparent materials.

**"Antichafe Coating"** means a coating applied to areas of moving aerospace components that may rub during normal operations or installation.

**"Bearing Coating"** means a specialty coating applied to an antifriction bearing, a bearing housing, or the area adjacent to such a bearing in order to facilitate bearing function or to protect base material from excessive wear. A material shall not be classified as a bearing coating if it can also be classified as a dry lubricative material or a solid film lubricant.

**"Bonding Maskant"** means a temporary specialty coating used to protect selected areas of aerospace parts from strong acid or alkaline solutions during processing for bonding.

**"Brush Coating"** means the application of a coating material to a substrate by means of a brush (this technique is commonly used for touch-up and maskant operations).

**"Caulking And Smoothing Compounds"** means semi-solid specialty coating materials which are applied by hand application methods and are used to aerodynamically smooth exterior vehicle surfaces or fill cavities such as bolt hole accesses. A material shall not be classified as a caulking and smoothing compound if it can also be classified as a sealant.

**"Chemical Agent-resistant Coating (CARC)"** means an exterior topcoat; specialty coating designed to

withstand exposure to chemical warfare agents or the decontaminants used on these agents.

**"Chemical Milling"** means a process used to reduce the thickness of selected areas of metal parts in order to reduce weight by submerging the metal parts in an etchant.

**"Chemical Milling Maskant"** means a coating that is applied directly to aluminum components to protect surface areas when chemically milling the component with a Type I or II etchant. Type I chemical milling maskants are used with a Type I etchant and Type II chemical milling maskants are used with a Type II etchant. This definition does not include bonding maskants, critical use and line sealer maskants, and seal coat maskants. Additionally, maskants that must be used with a combination of Type I or II etchants and any of the above types of maskants (i.e., bonding, critical use and line sealer, and seal coat) are not included.

**"Chemical Milling Maskant Application"** means the use of spray equipment or a dip tank to apply a Chemical milling maskant, prior to chemically milling the component with a Type I or II etchant.

**"Cleaning Operation"** means collectively spray gun, hand-wipe, and flush cleaning operations.

**"Cleaning Solvent"** means a liquid VOC containing material used for hand-wipe, spray gun, or flush cleaning.

**"Clear Coating"** means a transparent coating applied to any substrate.

**"Coating"** means a material that is applied to the surface of an aerospace vehicle or component to form a decorative, protective, or functional solid film, or the solid film itself.

**"Coating Operation"** means the use of a spray booth, tank, or other enclosure or area, such as a hangar, for the application of a single type of coating (e.g., primer). The use of the same spray booth for the application of another type of coating (e.g., topcoat) constitutes a separate coating operation for which compliance determinations are performed separately.

**"Commercial Exterior Aerodynamic Structure Primer"** means a specialty coating primer used on aerodynamic components and structures that protrude from the fuselage, such as wings and attached components, control surfaces, horizontal stabilizers, vertical fins, wing-to-body fairings, antennae, and landing gear and doors, for the purpose of extended corrosion protection and enhanced adhesion.

**"Commercial Interior Adhesive"** means specialty coating materials used in the bonding of passenger cabin interior components that meet the FAA fireworthiness requirements.

**"Compatible Substrate Primer"** means a specialty coating that is either a compatible epoxy primer or an adhesive primer. Compatible epoxy primer is primer that is compatible with the filled elastomeric coating and is epoxy based. The compatible substrate primer is an epoxy-polyamide primer used to promote adhesion of elastomeric coatings such as impact-resistant coatings. Adhesive primer is a coating that (1) inhibits corrosion and serves as a primer applied to bare metal surfaces or prior to adhesive application, or (2) is applied to surfaces that can be expected to contain fuel. Fuel tank coatings are excluded from this category.

**"Composite Processing Operations"** include layup, thermal forming, debulking, curing, break-out, compression molding, and injection molding. Layup means the process of assembling the layers of the composite structure by positioning composite material in a mold and impregnating the material with a resin. Thermal forming means the process of forming the layup in a mold, which usually takes place in an autoclave. Debulking means the simultaneous application of low-level heat and pressure to the composite structure to force out excess resin, trapped air, vapor, and volatiles from between the layers of the composite structure. Curing means the process of changing the resin into a solid material through a polymerization reaction. Break-out means the removal of the composite structure from the mold or curing fixtures. Compression molding means the process of filling one half of molds with a molding compound, closing the mold, and applying heat and pressure until the material is cured. Injection molding means the use of a closed mold, where the molding compound is injected into the mold, maintained under pressure, and then cured by applying heat.

**"Corrosion Prevention System"** means a coating system that provides corrosion protection by displacing water and penetrating mating surfaces, forming a protective barrier between the metal surface and moisture. Coatings containing oils or waxes are excluded from this category.

**"Critical Use Line And Sealer Maskant"** means a temporary specialty coating, not covered under other maskant categories, used to protect selected areas of aerospace parts from strong acid or alkaline solutions such as those used in anodizing, plating, chemical milling and processing of magnesium, titanium, or high-strength steel, high-precision aluminum chemical milling of deep cuts, and aluminum chemical milling of complex shapes. Materials used for repairs or to bridge gaps left by scribing operations (i.e., line sealer) are also included in this category.

**"Cryogenic Flexible Primer"** means a specialty coating primer designed to provide corrosion resistance,



flexibility, and adhesion of subsequent coating systems when exposed to loads up to and surpassing the yield point of the substrate at cryogenic temperatures (-275°F and below).

**"Cryoprotective Coating"** means a specialty coating that insulates cryogenic or subcooled surfaces to limit propellant boil-off, maintain structural integrity of metallic structures during ascent or re-entry, and prevent ice formation.

**"Cyanoacrylate Adhesive"** means a fast-setting, single component specialty coating adhesive that cures at room temperature. Also known as "super glue."

**"Depainting"** means the removal of any coating from the outer surface of an aerospace vehicle or component by either chemical or non-chemical means.

**"Depainting Operation"** means the use of a chemical agent, media blasting, or any other technique to remove coatings from the outer surface of aerospace vehicles or components. The depainting operation includes washing of the aerospace vehicle or component to remove residual stripper and coating residue.

**"Dip Coating"** means the application of a coating material to a substrate by dipping the part into a tank of the coating material.

**"Dry Lubricative Material"** means a specialty coating consisting of lauric acid, cetyl alcohol, waxes, or other noncross linked or resin-bound materials that act as a dry lubricant.

**"Electric Or Radiation-effect Coating"** means a specialty coating or coating system engineered to interact, through absorption or reflection, with specific regions of the electromagnetic energy spectrum, such as the ultraviolet, visible, infrared, or microwave regions. Uses include, but are not limited to, lightning strike protection, electromagnetic pulse (EMP) protection, and radar avoidance. Coatings that have been designated as "classified" by the Department of Defense are exempt.

**"Electrodeposition"** means an additive process for metal substrates in which another metal layer is added to the substrate in order to enhance corrosion and wear resistance necessary for the successful performance of the component. The two types of electrodeposition typically used are electroplating and plasma arc spraying.

**"Electrostatic Discharge And Electromagnetic Interference (Emi) Coating"** means a specialty coating applied to space vehicles, missiles, aircraft radomes, and helicopter blades to disperse static energy or reduce electromagnetic interference.

**"Electrostatic Spray"** means a method of applying a spray coating in which opposite electrical charges are applied to the substrate and the coating. The coating is attracted to the substrate by the electrostatic potential between them.

**"Elevated-temperature Skydrol-resistant Commercial Primer"** means a specialty coating primer applied primarily to commercial aircraft (or commercial aircraft adapted for military use) that must withstand immersion in phosphate-ester (PE) hydraulic fluid (Skydrol 500b or equivalent) at the elevated temperature of 150oF for 1,000 hours.

**"Epoxy Polyamide Topcoat"** means a specialty coating used where harder films are required or where engraving is accomplished in camouflage colors.

**"Etchant"** means a chemical used to mill a part or subassembly (e.g., sodium hydroxide for aluminum parts).

**"Exempt Solvent"** means an organic compound that has been determined to have negligible photochemical reactivity, as specified, and is defined in Regulation 24, Section 2 under "exempt compounds."

**"Fire-resistant (Interior) Coating"** means for civilian aircraft, fire-resistant interior coatings used on passenger cabin interior parts that are subject to the FAA fire worthiness requirements. For military aircraft, fire-resistant interior coatings means coatings that are used on parts that are subject to the flammability requirements of MIL-STD-1630A and MIL-A-87721. For space applications, fire-resistant interior coatings means coatings that are used on parts that are subject to the flammability requirements of SE-R-0006 and SSP 30233.

**"Flexible Primer"** means a specialty coating primer that meets flexibility requirements such as those needed for adhesive bond primed fastener heads or on surfaces expected to contain fuel. The flexible coating is required because it provides a compatible, flexible substrate over bonded sheet rubber and rubber-type coatings as well as a flexible bridge between the fasteners, skin, and skin-to-skin joints on outer aircraft skins. This flexible bridge allows more topcoat flexibility around fasteners and decreases the chance of the topcoat cracking around the fasteners. The result is better corrosion resistance.

**"Flow Coating"** means the application of a coating material to a substrate by pouring the coating over the

suspended part.

**"Flush Cleaning"** means the cleaning of an aerospace vehicle or component by passing solvent over, into, or through the vehicle or component. The solvent may simply be poured into the vehicle or component and then drained, or assisted by air or hydraulic pressure, or by pumping. Hand-wipe cleaning operations where wiping, scrubbing, mopping, or other hand action is used are not flush cleaning operations.

**"Formulation"** means a specific coating made by a specific manufacturer. Each different color of a specific coating is considered a separate formulation.

**"Fuel Tank Adhesive"** means a specialty coating adhesive used to bond components exposed to fuel which shall be compatible with fuel tank coatings.

**"Fuel Tank Coating"** means a specialty coating applied to fuel tank components for the purpose of corrosion and/or bacterial growth inhibition, and to assure sealant adhesion in extreme environmental conditions.

**"Hand-wipe Cleaning Operation"** means the removal of contaminants such as dirt, grease, oil, and coatings from aerospace vehicles or components by physically rubbing them with a material such as a rag, paper, or cotton swab that has been moistened with a cleaning solvent.

**"High Temperature Coating"** means a specialty coating designed to withstand temperatures of more than 350°F.

**"High Volume Low Pressure (HVL) Spray Equipment"** means spray equipment that is used to apply coatings using a spray gun that operates at equal to or less than 10.0 psig of atomized air pressure at the air cap.

**"Insulation Covering"** means a specialty coating material that is applied to foam insulation to protect the insulation from mechanical or environmental damage.

**"Intermediate Release Coating"** means a thin specialty coating applied beneath topcoats to assist in removing the topcoat in depainting operations, which generally allows the use of less hazardous depainting methods.

**"Lacquer"** means a clear or pigmented specialty coating formulated with a nitrocellulose or synthetic resin to dry by evaporation without a chemical reaction. Lacquers are resoluble in their original solvent.

**"Leak"** means any visible leakage, including misting and clouding.

**"Limited Access Space"** means internal surfaces or passages of an aerospace vehicle or component that cannot be reached for the application of coatings without the aid of an airbrush or a spray gun extension.

**"Metal Finishing"** means conversion coating, anodizing, desmutting, descaling, and any operation that chemically affect the surface layer of a part, and is used to prepare the surface of a part for better adhesion, improved surface hardness, and improved corrosion resistance.

**"Metalized Epoxy Coating"** means a specialty coating that contains relatively large quantities of metallic pigmentation for appearance and/or added protection.

**"Mold Release"** means a specialty coating applied to a mold surface to prevent the molded piece from sticking to the mold as it is removed.

**"Non-chemical-based Depainting Equipment"** means any depainting equipment or technique that does not rely on a chemical stripper to repaint an aerospace vehicle or component (e.g., media blasting equipment).

**"Nonstructural Adhesive"** means a specialty coating adhesive that bonds nonload bearing aerospace components in noncritical applications and is not covered in any other specialty adhesive categories.

**"Part Marking Coating"** means a specialty coating or ink used to make identifying markings on materials, components, and/or assemblies. These markings may be either permanent or temporary.

**"Pretreatment Coating"** means an organic specialty coating that contains at least 0.5 percent acids by weight and is applied directly to metal or composite surfaces to provide surface etching, corrosion resistance, adhesion, and ease of stripping.

**"Primer"** means the first layer and any subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, environment protection, functional fluid resistance, and adhesion promotion of subsequent coatings. Primers that are defined as specialty coatings are not included under this definition.

**"Radome"** means the non-metallic protective housing for electromagnetic transmitters and receivers (e.g., radar, electronic countermeasures, etc.).

**"Rain Erosion-resistant Coating"** means a specialty coating or coating system used to protect the leading edges of parts such as flaps, stabilizers, radomes, engine inlet nacelles, etc. against erosion caused by rain impact during flight.

**"Research And Development"** means an operation whose primary purpose is for research and development of new processes and products and that is conducted under the close supervision of technically trained personnel and is not involved in the manufacture of final or intermediate products for commercial purposes, except in a de minimis manner.

**"Rocket Motor Bonding Adhesive"** means a specialty coating adhesive used in rocket motor bonding applications.

**"Rocket Motor Nozzle Coating"** means a catalyzed epoxy specialty coating system used in elevated temperature applications on rocket motor nozzles.

**"Rubber-based Adhesive"** means a quick setting, specialty coating contact cement that provides a strong, yet flexible bond between two mating surfaces that may be of dissimilar materials.

**"Scale Inhibitor"** means a specialty coating that is applied to the surface of a part prior to thermal processing to inhibit the formation of scale.

**"Screen Print Ink"** means a specialty coating ink used in screen printing processes during fabrication of decorative laminates and decals.

**"Sealant"** means a specialty coating material used to prevent the intrusion of water, fuel, air, or other liquids or solids from certain areas of aerospace vehicles or components. There are two categories of sealants: extrudable/rollable/brushable sealants and sprayable sealants.

**"Seal Coat Maskant"** means a specialty coating overcoat applied over a maskant to improve abrasion and chemical resistance during production operations.

**"Self-priming Topcoat"** means a coating that is applied directly to an Aerospace vehicle or component for purposes of corrosion protection, environmental protection, and functional fluid resistance and that is not subsequently topcoated. More than one layer of identical coating formulation may be applied to the aerospace vehicle or component. Self-priming topcoats that are defined as specialty coatings are not included under this definition.

**"Silicone Insulation Material"** means an insulating specialty coating material applied to exterior metal surfaces for protection from high temperatures caused by atmospheric friction or engine exhaust. These materials differ from ablative coatings in that they are not "sacrificial."

**"Solids"** means the nonvolatile portion of the coating that after drying makes up the dry film.

**"Solid Film Lubricant"** means a very thin specialty coating consisting of a binder system containing as its main pigment material one or more of the following: molybdenum, graphite, polytetrafluoroethylene (PTFE), or other solids that act as a dry lubricant between faying (i.e., closely or tightly fitting) surfaces.

**"Space Vehicle"** means a man-made device, either manned or unmanned, designed for operation prototypes, molds, jigs, tooling, hardware jackets, and test coupons. Also included is auxiliary equipment associated with test, transport, and storage that through contamination can compromise the space vehicle performance.

**"Specialty Coating"** means a coating that, even though it meets the definition of a primer, topcoat, or self-priming topcoat, has additional performance criteria beyond those of primers, topcoats, and self-priming topcoats for specific applications. These performance criteria may include, but are not limited to, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealing, adhesively joining substrates, or enhanced corrosion protection. A specialty coating is any coating listed in Table 7-1 and defined in section 10.2.

**"Specialized Function Coating"** means a specialty coating that fulfills extremely specific engineering requirements that are limited in application and are characterized by low volume usage. This category excludes coatings covered in other Specialty Coating categories.

**"Spray Gun"** means a device that uses air pressure or air flow to atomize a coating or other material, and to project the atomized coating particulates or other material onto a component.

**"Stripper"** means a liquid that is applied to an aerospace vehicle or component to remove primer, topcoat, self-priming topcoat, or coating residue.

**"Structural Autoclavable Adhesive"** means a specialty coating adhesive used to bond load-carrying aerospace components that are cured by heat and pressure in an autoclave.

**"Structural Nonautoclavable Adhesive"** means a specialty coating adhesive cured under ambient conditions that is used to bond load-carrying aerospace components or other critical functions, such as nonstructural bonding in the proximity of engines.

**"Surface Preparation"** means the removal of contaminants from the surface of an aerospace vehicle or

component, or the activation or reactivation of the surface in preparation for the application of a coating.

**"Temporary Protective Coating"** means a specialty coating applied to provide scratch or corrosion protection during manufacturing, storage, or transportation. Two types include peelable protective coatings and alkaline removable coatings. These materials are not intended to protect against strong acid or alkaline solutions. Coatings that provide this type of protection from chemical processing are not included in this category.

**"Thermal Control Coating"** means a specialty coating formulated with specific thermal conductive or radiative properties to permit temperature control of the substrate.

**"Topcoat"** means a coating that is applied over a primer on an aerospace vehicle or component for appearance, identification, camouflage, or protection. Topcoats that are defined as specialty coatings are not included under this definition.

**"Touch-up And Repair Coating"** means a coating used to cover minor coating imperfections appearing after the main coating operation.

**"Touch-up And Repair Operation"** means that portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage. This definition includes out-of-sequence or out-of-cycle coating. Touch-up and repair operations are not to exceed an area of 4 square feet per aerospace vehicle.

**"Type II Etchant"** or **"Type II chemical milling etchant"** means a Chemical milling etchant that is a strong sodium hydroxide solution containing amines (Type I etchants do not contain amines).

**"Volatile Organic Compound (VOC)"** means any compound defined as VOC in Regulation 24, Section 2 - Definitions.

**"VOC Composite Vapor Pressure"** means the sum of the partial pressures of the compounds defined as VOC's and is determined by the following calculation:

$$PP_c = \sum_{i=1}^n \frac{\overline{MW_i}}{\frac{W_w}{MW_w} + \sum_{e=1}^n \frac{W_e}{MW_e} + \sum_{i=1}^n \frac{W_i}{MW_i}}$$

Wi	=	Weight of the "i"th VOC compound, grams
Ww	=	Weight of water, grams
We	=	Weight of nonwater, non-VOC compound, grams
MWi	=	Molecular weight of the "i"th VOC compound, g/g-mole
MWw	=	Molecular weight of water, g/g-mole
MWe	=	Molecular weight of exempt compound, g/g-mole
PPc	=	VOC composite partial pressure at 20oC, mm Hg
VPi	=	Vapor pressure of the "i"th VOC compound at 20oC, mm Hg

**"Wet Fastener Installation Coating"** means a specialty coating primer or sealant applied by dipping, brushing, or daubing to fasteners that are installed before the coating is cured.

**"Wing Coating"** means a corrosion-resistant specialty coating topcoat that is resilient enough to withstand the flexing of the wings.

#### **6 DE Reg. 971 (2/1/03)**

#### 10.3 Standards.

##### 10.3.1 Hand-Wipe Cleaning Operations.

10.3.1.1 Except as exempted in paragraph 10.3.1.2, no person subject to this Section shall cause or allow on any day the use of any cleaning solvent in any hand-wipe cleaning operation that

does not comply with one of the following limits:

10.3.1.1.1 VOC composite vapor pressure should be less than 45 millimeters (mm) mercury (Hg) (1.8 inches [in] Hg) at 20 degrees Celsius ((C) (68 degrees Fahrenheit [(F])).

10.3.1.1.2 Cleaning solvent shall be an aqueous cleaning solvent (i.e., a solvent in which water is at least 80 percent of the solvent, as applied).

10.3.1.2 The requirements of paragraphs 10.3.1.1 of this Section shall not apply to the following hand-wipe cleaning operations:

10.3.1.2.1 Cleaning during the manufacture, assembly, installation, maintenance, or testing of components of breathing oxygen systems that are exposed to the breathing oxygen.

10.3.1.2.2 Cleaning during the manufacture, assembly, installation, maintenance, or testing of parts, subassemblies, or assemblies that are exposed to strong oxidizers or reducers (e.g., nitrogen tetroxide, liquid oxygen, and hydrazine).

10.3.1.2.3 Cleaning and surface activation prior to adhesive bonding.

10.3.1.2.4 Cleaning of electronics and assemblies containing electronics.

10.3.1.2.5 Cleaning of aircraft fluid system and ground support equipment fluid systems that are exposed to the fluid, including air-to-air heat exchangers and hydraulic fluid systems.

10.3.1.2.6 Cleaning of fuel cells, fuel tanks, and limited-access spaces.

10.3.1.2.7 Surface cleaning of solar cells, coated optics, and thermal control surfaces.

10.3.1.2.8 Cleaning during fabrication, assembly, installation, and maintenance of upholstery, curtains, carpet, and other textile materials used on the interior of the aircraft.

10.3.1.2.9 Cleaning of metallic and non-metallic materials used in honeycomb cores during the manufacture or maintenance of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components.

10.3.1.2.10 Cleaning of aircraft transparencies.

10.3.1.2.11 Cleaning associated with research and development, quality control, and laboratory testing.

#### 10.3.2 Spray Gun Cleaning Operations.

10.3.2.1 No person subject to this Section shall cause or allow on any day the use of any spray gun cleaning techniques that does not comply with one of the following:

10.3.2.1.1 Use of an enclosed spray gun cleaning system that is kept closed when not in use.

10.3.2.1.2 Non-atomized discharge of solvent into a waste container that is kept closed when not in use.

10.3.2.1.3 Disassembly of the spray gun and placing the parts for cleaning in a vat that is kept closed when not in use.

10.3.2.1.4 Atomized spray into a waste container that is fitted with a device that captures atomized solvent emissions.

10.3.2.1.5 Any alternative technique that has been demonstrated to, and accepted by the Department as producing emissions that are equal to or less than the emissions from the techniques specified in sections 10.3.2.1.1 through 10.3.2.1.4. Emissions from any alternative technique shall be demonstrated pursuant to test protocols that are approved in advance by the Department.

10.3.2.2 Any enclosed spray gun cleaner shall be visually inspected for leaks at least once per month. Such inspection shall occur while the enclosed spray gun cleaner is in operation.

10.3.2.3 Leaks from any enclosed spray gun cleaner shall be repaired as soon as practicable, but no later than 15 days from when the leak is first discovered.

10.3.2.4 If any leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the leak is repaired.

10.3.3 Flush Cleaning. Any cleaning solvents used during flush cleaning operations shall be handled pursuant to section 10.3.8.

#### 10.3.4 Primer, Topcoat, and Self-Priming Topcoat Application.

10.3.4.1 Except as provided for in section 10.3.4.2.4 and 10.3.4.2.5, no person subject to this Section shall cause or allow on any day the application of any primer, topcoat, and/or self-priming topcoat with a VOC content that does not comply with the following limits:

10.3.4.1.1 Primers shall have a VOC content equal to or less than 350 g/L (2.9 lb/gal), excluding water and exempt compounds, as applied.

10.3.4.1.2 Topcoats and self-priming topcoats shall have a VOC content equal to or less than 420 g/L (3.5 lb/gal), excluding water and exempt compounds, as applied.

10.3.4.2 The requirements of section 10.3.4.1.2 shall not apply to facilities that use less than 50 gallons per consecutive rolling 12-month period of a particular formulation of topcoat, or self-priming topcoat provided:

10.3.4.2.1 Each topcoat and self-priming topcoat shall have a VOC content equal to or less than 720 g/L (6.0 lb/gal), excluding water and exempt compounds as applied.

10.3.4.2.2 A total of not more than 200 gallons per consecutive rolling 12-month period of all such high VOC coatings are used at the facility.

10.3.4.3 Except as provided for in section 10.3.4.4, no person subject to this Section shall cause or allow on any day the use of any application technique to apply any primer, topcoat, or self-priming topcoat other than the following:

10.3.4.3.1 flow/curtain coat, roll coat, brush coat, dip coat, cotton-tip swab application, electrostatic spray, electrodeposition, or high volume low pressure (HVLP) spray guns;

10.3.4.3.2 Any alternate technique that has been demonstrated to and accepted by the Department as providing emissions that are less than or equal to the emissions from HVLP or electrostatic spray application techniques. Emissions from any alternate techniques shall be demonstrated pursuant to test protocols that are approved in advance by the Department. Such tests shall, at a minimum, compare the emission levels determined using an initial 90-day period of HVLP or electrostatic spray attraction techniques with the emission levels determined using the alternate technique for a period of time necessary to coat the equivalent amount of parts with the same coatings.

10.3.4.4 The equipment standards and application techniques in section 10.3.4.3 shall not apply to the following primer, topcoat and self-priming topcoat application operations:

10.3.4.4.1 The application of coatings in any limited access space.

10.3.4.4.2 The application of coatings that contain fillers that adversely affect atomization with HVLP spray guns and cannot be applied by any of the application techniques specified in section 10.3.4.3.

10.3.4.4.3 The application of coatings that normally have a dried film thickness of less than 0.0005 inches and cannot be applied by any of the application techniques specified in section 10.3.4.3.

10.3.4.4.4 The use of airbrush application methods for stenciling, lettering, and other identification markings.

10.3.4.4.5 Any touch-up and repair operation.

10.3.4.5 All application equipment shall be operated according to the manufacturer's specifications at all times, even if it is exempt from the equipment standards specified in section 10.3.4.3.

10.3.5 Depainting Operation. No person subject to this Section shall cause or allow on any day the use of any stripper that does not comply with one of the following limits:

10.3.5.1 VOC composite vapor pressure shall be less than 10 mm Hg (0.4 in. Hg) at 20(C (68(F).

10.3.5.2 VOC content shall be less than 400 g/L (3.3 lb/gal), excluding water and exempt compounds, as applied.

10.3.6 Chemical Milling Maskant Application.

Except as provided for in section 10.4 or 10.5, no person subject to this Section shall cause or allow on any day the application of any chemical milling maskant with a VOC content that does not comply with the following emission limits:

10.3.6.1 For any Type I maskant, VOC content equal or less than 622 g/L (5.2 lbs/gal), excluding water and exempt compounds, shall be applied; or

10.3.6.2 For any Type II maskant, VOC content equal or less than 160 g/L (1.3 lbs/gal), excluding water and exempt compounds, shall be applied.

10.3.7 Specialty Coatings

Except as provided for in section 10.4 or 10.5, no person subject to this Section shall

cause or allow on any day the application of any specialty coating that has a VOC content, excluding water and exempt compounds, as applied, that is greater than the limits specified in Table 10-1:

TABLE 10-1. VOC CONTENT LIMITS FOR SPECIALTY COATINGS (g/L) <sup>a</sup>			
Coating Type	Limit	Coating Type	Limit
<u>Ablative Coating</u>	<u>600</u>	<u>Epoxy Polyamide Topcoat</u>	<u>660</u>
<u>Adhesives:</u>	<u>760</u>	<u>Fire-Resistant (interior) Coating</u>	<u>800</u>
<u>Commercial Interior Adhesive</u>	<u>1,020</u>	<u>Flexible Primer</u>	<u>640</u>
<u>Cyanoacrylate Adhesive</u>	<u>620</u>	<u>Flight-Test Coatings: Missile or Single Use</u>	<u>420</u>
<u>Fuel Tank Adhesive</u>	<u>360</u>	<u>Aircraft</u>	<u>840</u>
<u>Nonstructural Adhesive</u>	<u>890</u>	<u>All other</u>	
<u>Rocket Motor Bonding Adhesive</u>	<u>850</u>	<u>Fuel-Tank Coating</u>	<u>720</u>
<u>Rubber-based Adhesive</u>	<u>60</u>	<u>High-Temperature Coating</u>	<u>850</u>
<u>Structural Autoclavable Adhesive</u>	<u>850</u>	<u>Insulation Covering</u>	<u>740</u>
<u>Structural Nonautoclavable Adhesive</u>		<u>Intermediate Release Coating</u>	<u>750</u>
<u>Adhesion promoter</u>	<u>890</u>	<u>Lacquer</u>	<u>830</u>
<u>Adhesive Bonding Primers:</u>	<u>850</u>		
<u>Cured at 250°F or below</u>	<u>1,030</u>		
<u>Cured above 250°F</u>			
<u>Antichafe coating</u>	<u>660</u>	<u>Maskants (excluding Type I and Type II):</u>	<u>1,230</u>
		<u>Bonding maskant</u>	<u>1,020</u>
		<u>Critical Use and Line Sealer Maskant</u>	<u>1,230</u>
		<u>Seal Coat Maskant</u>	
<u>Bearing coating</u>	<u>620</u>	<u>Pretreatment Coating</u>	<u>780</u>
<u>Caulking and smoothing compounds</u>	<u>850</u>	<u>Rain Erosion-Resistant Coating</u>	<u>850</u>
<u>Chemical Agent-Resistant Coating</u>	<u>550</u>	<u>Rocket Motor Nozzle Coating</u>	<u>660</u>
<u>Clear Coating</u>	<u>720</u>	<u>Scale Inhibitor</u>	<u>880</u>
<u>Commercial exterior aerodynamic structure primer</u>	<u>650</u>	<u>Screen Print Ink</u>	<u>840</u>
<u>Compatible Substrate Primer</u>	<u>780</u>	<u>Sealants:</u>	
		<u>Extrudable/Rollable/Brushable Sealant</u>	<u>280</u>
		<u>Sprayable Sealant</u>	<u>600</u>
<u>Corrosion Prevention Compound</u>	<u>710</u>	<u>Silicone Insulation Material</u>	<u>850</u>
<u>Cryogenic Flexible Primer</u>	<u>645</u>	<u>Solid Film Lubricant</u>	<u>880</u>
<u>Cryoprotective Coating</u>	<u>600</u>	<u>Specialized Function Coating</u>	<u>890</u>
<u>Dry Lubricative Material</u>	<u>880</u>	<u>Temporary Protective Coating</u>	<u>320</u>
<u>Electric or Radiation-Effect Coating</u>	<u>800</u>	<u>Thermal Control Coating</u>	<u>800</u>
<u>Electrostatic Discharge and Electromagnetic Interference (EMI) Coating</u>	<u>800</u>	<u>Wet Fastener Installation Coating</u>	<u>675</u>
<u>Elevated-Temperature Skydrol-Resistant Commercial Primer</u>	<u>740</u>	<u>Wing Coating</u>	<u>850</u>

a Coating limits expressed in terms of mass (grams) of VOC per volume (liters) of coating less water and less exempt solvent. To convert from g/L to lbs/gallon multiply by 0.00835.

### 10.3.8 VOC Handling and Storage.

10.3.8.1 Except as provided in section 10.3.8.2, any person subject to this Section shall use good house keeping measures when handling any VOC and any VOC-containing material at the facility. Such measures shall include:

10.3.8.1.1 Handling and transferring all fresh and spent cleaning solvent and other VOC-containing material to or from any container, tank, vat, vessel, or piping system, etc. in such a manner that minimizes losses.

10.3.8.1.2 All fresh and spent solvents and VOC-containing material shall be stored in closed containers at all times except during filling or emptying.

10.3.8.1.3 All solvent-laden cloths, papers, or other absorbent materials shall be placed in closed containers immediately after use.

10.3.8.2 The requirements in section 10.3.8.1 shall not apply to wastes that are determined to be hazardous wastes under the Resource Conservation and Recovery Act of 1976 (PL 94-580) (RCRA), as implemented by 40 Code of Federal Regulations (CFR) Parts 260 and 261, and that are subject to RCRA requirements, as implemented in 40 CFR Parts 262 through 268.

10.4 Daily-Weighted Average Limitations. As an alternative to complying with the individual limits specified in sections 10.3.4.1.1, 10.3.4.1.2, 10.3.6.1, 10.3.6.2, and 10.3.7, coatings in any primer, topcoat, chemical milling maskant, or specialty coating application operation shall not be applied at the facility, during any day, whose daily-weighted average VOC content, calculated in accordance with the procedure specified in Appendix "C" of Regulation 24 and the provisions listed below, exceeds the applicable emission limits in sections 10.3.4.1.1, 10.3.4.1.2, 10.3.6.1, 10.3.6.2, and 10.3.7, as applicable.

10.4.1 Averaging between primers, topcoats, self-priming topcoats, chemical milling maskants and/or specialty coatings is prohibited.

10.4.2 Averaging between coatings used in operations where air emissions are not captured and controlled and coatings used in operations where air emissions are captured and controlled is prohibited.

#### 10.5 Control Devices.

10.5.1 As an alternative to complying with the individual limits specified in section 10.3.4.1.1, 10.3.4.1.2, 10.3.6.1, 10.3.6.2, and 10.3.7, any person subject to this Section shall, for any primer, topcoat, self-priming topcoat, chemical milling maskant, and/or specialty coating application operation:

10.5.1.1 Install, test, calibrate, operate, maintain, and monitor according to the manufacturer's specifications, as approved by the Department, an air pollution control device consisting of a capture and control system on that operation; and

10.5.1.2 Demonstrate that the overall emission reduction efficiency achieved is equal to or greater than 81 weight percent.

10.5.2 The procedures in Appendix "D" and Appendix "E" of Regulation 24 shall be used to demonstrate compliance with section 10.5.1.2. The method in Appendix "I" of Regulation 24 may be used to determine an alternative multi-day rolling period when calculating the efficiency of any carbon absorption system.

#### 10.6 Test Methods.

10.6.1 The VOC composite vapor pressure specified in section 10.3.1.1.1 and section 10.3.5.1 shall be determined either by using ASTM Method E 260-91, manufacturer's supplied data, or standard engineering reference text values.

10.6.2 The water content specified in section 10.3.1.1.2 shall be determined using the test methods found in Appendix "A" and Appendix "B" of Regulation 24.

10.6.3 The VOC content specified in section 10.3.4.1.1 and 10.3.4.1.2 shall be determined by using the test method found in Appendix "A" and Appendix "B" of Regulation 24.

10.7 Recordkeeping. Any person subject to this Section shall maintain at the facility for a minimum period of 5 years from the information's date of record, all of the following information. Such information shall be immediately submitted to the Department upon written or verbal request.

10.7.1 For any person subject to the requirements of section 10.3.1 (i.e., hand-wipe cleaning operations):

10.7.1.1 Identification of each hand-wipe cleaning solvent used at the facility;

10.7.1.2 The composite vapor pressure of each hand-wipe cleaning solvent complying with section 10.3.1.1.1, and all supporting documentation, to include any test reports and/or calculations.

10.7.1.3 The water content of each hand-wipe cleaning solvent complying with paragraph 10.3.1.1.2, and all supporting documentation, to include any test reports and/or calculations.

10.7.1.4 Identification of each hand-wipe cleaning solvent used at the facility pursuant to section 10.3.1.2, and a list of the parts, assemblies, or subassemblies cleaned with each such hand-wipe cleaning solvent.

10.7.2 For any person subject to section 10.3.2 (i.e., spray gun cleaning):



- 10.7.2.1 A description of each method used to clean spray guns.
- 10.7.2.2 Records of the inspections conducted pursuant to paragraph 10.3.2.2.1.
- 10.7.2.3 For any leak found pursuant to section 10.3.2.2.1, records indicating the source of the leak, the date the leak was discovered, and the date the leak was repaired.
- 10.7.3 For any person subject to section 10.3.4 (i.e., primer, topcoat, and self-priming topcoat application):
  - 10.7.3.1 For each coating applied pursuant to section 10.3.4.2.
    - 10.7.3.1.1 Not later than the 5th day of each month, identification of each coating used at the facility pursuant to section 10.3.4.2 during the preceding month.
    - 10.7.3.1.2 The volume used of each coating identified in section 10.7.3.1.1.
    - 10.7.3.1.3 The summation of the volumes recorded pursuant to section 10.7.3.1.2 for the preceding twelve (12) months.
    - 10.7.3.1.4 The records required by section 4.5 of Regulation 24.
  - 10.7.3.2 A description of the proper operation of all coating application equipment used at the facility.
  - 10.7.3.3 Documentation associated with any alternate coating application techniques approved pursuant to section 10.3.4.3.2.
- 10.7.4 For any person subject to section 10.3.4, 10.3.6, and 10.3.8 (i.e., primer, topcoat, self-priming topcoat, chemical milling maskant, and specialty coating application):
  - 10.7.4.1 Identification of the control strategy employed (i.e., the combination of complying coatings, daily-weighted averaging, and control devices used at the facility).
  - 10.7.4.2 Where complying coatings are used, the records required by Section 4.3 of Regulation 24.
  - 10.7.4.3 Where daily-weighted averaging pursuant to Section 10.4 is used, the records required by Section 4.4 of Regulation 24.
  - 10.7.4.4 Where a control device(s) pursuant to paragraph 10.5 of this Section is used, the records required by Section 4.5 of Regulation 24.
- 10.7.5 For any person subject to section 10.3.5:
  - 10.7.5.1 If complying with section 10.3.5.1, the name, VOC composite vapor pressure, and method and supporting documentation used to determine the VOC composite vapor pressure of each stripper used at the facility.
  - 10.7.5.2 If complying with section 10.3.5.2, the name, VOC content, and method and supporting documentation used to determine the VOC content of each stripper used at the facility.
  - 10.7.5.3 A description of any non-chemical-based depainting equipment used at the facility, to include the name and type of equipment or technique.
  - 10.7.5.4 Records and a description of all malfunctions of non-chemical-based depainting equipment used at the facility, to include the dates and alternative depainting method(s) used.
  - 10.7.5.5 A list of any parts, assemblies, or subassemblies normally removed during depainting operations.
- 10.7.6 For any person subject to section 10.3.8, a description of the procedures used to ensure that containers are kept closed when not in use and that solvents and other VOC-containing materials are stored in closed containers.
- 10.8 Reporting. Notification of any non-compliance with any requirement of this Section shall be reported to the Department in accordance with Section 4 and 5 of Regulation 24, as applicable and any other applicable Federal or State reporting requirements.

**6 DE Reg. 190 (8/1/02)**

**11.0 Mobile Equipment Repair and Refinishing.**

- 11.1 Applicability.
  - 11.1.1 This Section applies to any person who applies coatings, for the purpose of protection and/or beautification, to mobile equipment or mobile equipment components in the State of Delaware, except:
    - 11.1.1.1 The surface coating process at any automobile assembly plant.
    - 11.1.1.2 Persons who do not receive compensation for the application of the

coatings.

11.1.1.3 The application of coatings sold in non-refillable aerosol cans.

11.1.2 Any person subject to the requirements of this Section shall be in compliance on or after October 31, 2003.

11.1.3 Any person who is currently subject to a state or federal rule promulgated pursuant to the Clean Air Act Amendments of 1977 by exceeding an applicability threshold is and shall remain subject to those provisions.

11.1.4 Compliance with the requirements of this section are in addition to all other state and federal requirements, to include the requirements of 40 CFR 59, Subpart B, "National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings".

11.2 Definitions. As used in this Section, all terms not defined herein shall have the meaning given them in the November 15, 1990 Clean Air Act Amendments (CAAA), or in Section 2 of Regulation 24.

**"Airless Spray"** means a spray coating method in which the coating is atomized by forcing it through a small nozzle at high pressure. The coating is not mixed with air before exiting from the nozzle opening.

**"Electrostatic spray"** means the application of charged atomized paint droplets that are deposited by electrostatic attraction.

**"High Volume Low Pressure"** or "HVLP" means a method of spraying a coating, that improves the transfer efficiency while maintaining the air pressure between 0.1 and 10 pounds per square inch gauge (psig).

**"Mobile equipment"** means any equipment that is physically capable of being driven or drawn upon a highway including, but not limited to, the following types of equipment: automobiles; trucks, truck cabs, truck bodies; buses; motorcycles; ground support vehicles, used in support of aircraft activities at airports; construction vehicles (such as mobile cranes, bulldozers, concrete mixers); farming equipment (such as wheel tractors, plows, and pesticide sprayers); hauling equipment (such as truck trailers, utility bodies, and camper shells); and miscellaneous equipment (such as street cleaners and golf carts).

### 11.3 Standards.

11.3.1 Any person subject to the requirements of this Section shall use only the following application techniques:

11.3.1.1 Any non-atomized application technique (e.g., Flow/curtain coating, Dip coating, Roller coating, Brush coating, Cotton-tipped swab application coating, Electrodeposition coating, etc.)

11.3.1.2 High Volume Low Pressure (HVLP) spraying;

11.3.1.3 Electrostatic spray;

11.3.1.4 Airless spray;

11.3.1.5 Any other coating application technique that the person has demonstrated and the Department has determined achieves emission reductions equivalent to HVLP or electrostatic spray.

11.3.2 The following are exempt from the requirements of paragraph 11.3.1 of this Section:

11.3.2.1 The use of airbrush application methods for graphics, stenciling, lettering, and other identification markings;

11.3.2.2 The applications of coatings to cover finish imperfections equal to or less than 1 inch in diameter.

11.3.3 Spray guns used to apply coatings to mobile equipment or mobile equipment components shall be cleaned by one of the following methods:

11.3.3.1 Use of an enclosed spray gun cleaning system that is kept closed when not in use.

11.3.3.2 The unatomized discharge of solvent into a paint waste container that is kept closed when not in use.

11.3.3.3 The disassembly of the spray gun and cleaning in a vat that is kept closed when not in use.

11.3.3.4 The atomized spray into a paint waste container that is fitted with a device designed to capture atomized solvent emissions.

11.3.4 Any person subject to the provisions of this Section shall implement the following housekeeping and pollution prevention measures:

11.3.4.1 Fresh and used coatings, solvent, and cleaning solvents shall be stored in

non-absorbent, non-leaking containers. The containers shall be kept closed at all times except when filling or emptying.

11.3.4.2 Cloth and paper, or other absorbent applicators, moistened with coatings, solvents, or cleaning solvents shall be stored in closed, non-absorbent, non-leaking containers.

11.3.4.3 Handling and transfer procedures shall minimize spills during the transfer of coatings, solvents, and cleaning solvents.

11.3.5 Any person subject to the requirements of this Section shall be trained in the proper use and handling of coatings, solvents and waste products in order to minimize the emission of air contaminants.

11.3.5.1 Proof of training for any person subject to the requirements of this Section shall be maintained on the facility premises.

11.3.5.2 Acceptable forms of training include equipment or paint manufacturer's seminars, classes, workshops, or any other training approved by the Department.

**5 DE Reg. 1101 (11/1/01)**

- 12.0 Reserved**
- 13.0 Reserved**
- 14.0 Reserved**
- 15.0 Reserved**
- 16.0 Reserved**
- 17.0 Reserved**
- 18.0 Reserved**
- 19.0 Reserved**
- 20.0 Reserved**
- 21.0 Reserved**
- 22.0 Reserved**
- 23.0 Reserved**
- 24.0 Reserved**
- 25.0 Reserved**

**26.0 Gasoline Dispensing Facility Stage I Vapor Recovery**

1/11/93

1/11/02

**26.1 Applicability.**

26.1.1 This Section applies to any stationary gasoline storage tank located at any gasoline dispensing facility in the State of Delaware, except:

26.1.1.1 The following storage tanks shall be subject only to the requirements of paragraph 26.3.1.1 of this Section:

26.1.1.1.1 Any stationary gasoline storage tank that is equipped with a floating roof or its equivalent that has been approved by the Administrator of the U.S. EPA as part of a State Implementation Plan (SIP) or Federal Implementation Plan (FIP) revision.

26.1.1.1.2 Any stationary gasoline storage tank with a capacity of less than 550 gallons [gal] used exclusively for the fueling of farm equipment.

26.1.1.1.3 Any stationary gasoline storage tank with a capacity of less than 2,000 gal that was constructed prior to January 1, 1979.

26.1.1.1.4 Any stationary gasoline storage tank with a capacity of less than 250 gal that was constructed after December 31, 1978.

26.1.1.2 The storage tank(s) at any gasoline dispensing facility, which never has a throughput of greater than 10,000 gallons of gasoline, shall be subject only to the requirements of sections 26.3.1.1 and 26.4. The storage tank(s) at any gasoline dispensing facility that ever exceeds this applicability threshold shall be subject to all of the requirements of this Section, and shall remain subject to these requirements even if its throughput later falls below the exemption throughput.

26.1.2 The requirements of this Section are in addition to all other State and Federal requirements, to include the permitting requirements of Regulation No. 2 of the State of Delaware "Regulations

Governing the Control of Air Pollution". Any gasoline dispensing facility that is currently subject to any state or federal rule promulgated pursuant to the Clean Air Act Amendments of 1977 by exceeding an applicability threshold is and shall remain subject to those provisions.

#### 26.1.3 Compliance Schedule

Any stationary gasoline storage tank subject to the requirements of this Section shall be in compliance as follows:

26.1.3.1 Storage tanks located at any facility that first commences operations:

26.1.3.1.1 Before November 15, 1990 and having any throughput of at least 100,000 gallons: no later than November 15, 1993.

26.1.3.1.2 Before November 15, 1990 and having any throughput of greater than 10,000 gallons but less than 100,000 gallons: no later than November 15, 1994.

26.1.3.1.3 On or after November 15, 1990 and before May 15, 1993: no later than May 15, 1993.

26.1.3.1.4 On or after May 15, 1993: upon commencement of operations.

26.1.3.2 The requirements of paragraph 26.3.1.2.5 are effective on and after May 1, 2003.

26.2 Reserved.

26.3 Standards.

26.3.1 The owner and/or operator of any stationary storage tank that is subject to the requirements of this Section shall:

26.3.1.1 Load the stationary gasoline storage tank(s) by submerged fill using a drop tube that extends to within 150 mm (5.9 in.) from the bottom of the tank.

26.3.1.2 Design, install, operate, and maintain a Stage I Vapor Recovery System that operates such that the vapors displaced by the liquid gasoline are returned to the delivery vessel and transported back to the bulk plant or terminal.

26.3.1.2.1 All hoses in the Stage I Vapor Recovery system shall be properly connected.

26.3.1.2.2 All vapor lines, couplers, and adapters used in the gasoline delivery shall be vapor-tight.

26.3.1.2.3 All adapters and couplers that attach to any vapor line on the storage vessel shall have closures that seal upon disconnect.

26.3.1.2.4 Reserved.

26.3.1.2.5 All Stage I systems shall utilize dual point vapor connections to return vapors from the storage tank to the delivery truck.

26.3.2 The filling of storage tanks subject to the requirements of this Section shall be limited to unloading by vapor-tight gasoline tank trucks or delivery trucks which:

26.3.2.1 meet all of the requirements of Section 27 of this regulation; and

26.3.2.2 are equipped with vapor return equipment that is compatible with the Stage I Vapor Recovery System installed on the storage tank.

26.4 Recordkeeping. The owner and/or operator of any stationary gasoline storage tank exempted from the requirements pursuant to section 26.1.1.2 shall keep on the facility premises and in a form acceptable to the Department, records showing monthly throughput. These records shall be retained for at least 5 years from the date of record, and shall be made immediately available to the Department upon request.

26.4 Reporting. The owner and/or operator of any facility containing sources subject to this Section shall comply with the requirements of Section 5 of this regulation.

#### 5 DE Reg. 1482 (1/1/02)

**27.0 Reserved**

**28.0 Reserved**

**29.0 Reserved**

**30.0 Reserved**

**31.0 Reserved**

**32.0 Reserved**

### 33.0 Solvent Cleaning and Drying

#### 33.1 Applicability.

33.1.1 This Section applies to any person who owns or operates a solvent cleaning machine that meets the criteria of sections 33.1.1.1 and 33.1.1.2.

33.1.1.1 Contains more than 1 liter of solvent.

33.1.1.2 Uses any solvent containing volatile organic compounds in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent.

33.1.2 Except as provided in sections 33.3.4 through 33.3.6, existing sources affected by this Section shall comply with the provisions of this Section no later than November 11, 2001. New, modified, or reconstructed sources affected by this Section shall comply with the provisions of this Section upon start-up.

33.1.3 Any person subject to both this Section and Regulation 30 of the State of Delaware "Regulations Governing the Control of Air Pollution" shall submit to the Department a request to amend the existing Title V permit, consistent with the permitting requirements of Regulation 30. Any person subject to paragraph c. of this Section, but not subject to Regulation 30, shall request to be covered under a source category permit, consistent with Regulation 2 of the State of Delaware "Regulations Governing the Control of Air Pollution" within 90 days of the Department's establishment of a source category permit covering solvent cleaning and drying. Any person subject to paragraphs d. through g. of this Section, but not subject to Regulation 30, shall submit to the Department a request to amend the existing Regulation 2 permit, consistent with the permitting requirements of Regulation 2.

33.2 Definitions. As used in this Section, all terms not defined herein shall have the meaning given them in the November 15, 1990 Clean Air Act Amendments, in Regulation 1, or in Section 2 of this regulation.

**"Airless Cleaning System"** means a solvent cleaning machine that is automatically operated and seals at a differential pressure of 0.50 pounds per square inch gauge (psig) or less, prior to the introduction of solvent or solvent vapor into the cleaning chamber and maintains differential pressure under vacuum during all cleaning and drying cycles.

**"Airtight Cleaning System"** means a solvent cleaning machine that is automatically operated and seals at a differential pressure of 0.50 pounds per square inch gauge (psig) or less, prior to the introduction of solvent or solvent vapor into the cleaning chamber and during all cleaning and drying cycles.

**"Automated Parts Handling System"** means a mechanical device that carries all parts and parts baskets at a controlled speed from the initial loading of soiled or wet parts through the removal of the cleaned or dried parts. Automated parts handling systems include, but are not limited to, hoists and conveyors.

**"Batch Vapor Cleaning Machine"** means a vapor solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning or drying cycle before new parts are introduced into the cleaning machine. The term does not include machines that do not have a solvent/air interface, such as airless and airtight cleaning systems.

**"Carbon Adsorber"** means a bed of activated carbon into which an air/solvent gas-vapor stream is routed and which adsorbs the solvent on the carbon.

**"Cold Cleaning Machine"** means a solvent cleaning machine that contains and/or uses unheated liquid solvent into which parts are placed to remove soils from the surfaces of the parts or to dry the parts. The term does not include machines that do not have a solvent/air interface, such as airless and airtight cleaning systems.

**"Downtime Mode"** means the time period when a solvent cleaning machine is not cleaning or drying parts and the sump heating coils, if present, are turned off.

**"Dwell"** means the technique of holding parts within the freeboard area but above the vapor zone of a solvent cleaning machine. Dwell occurs after cleaning or drying to allow solvent to drain from the parts or parts baskets back into the solvent cleaning machine.

**"Dwell Time"** means the period of time between when parts or a parts basket is placed in the vapor zone of a batch vapor or in-line vapor cleaning machine and when solvent dripping ceases.

**"Freeboard Height"** means, for a batch cold cleaning machine, the distance from the liquid solvent level to the top of the solvent cleaning machine. For a batch vapor cleaning machine, it is the distance from the solvent/air interface to the top of the solvent cleaning machine, as measured during idling mode. For an in-line cleaning machine, it is the distance from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower, as measured during idling mode.

**"Freeboard Ratio"** means the ratio of the solvent cleaning machine freeboard height to the smaller interior dimension (length, width, or diameter) of the solvent cleaning machine.

**“Freeboard Refrigeration Device”** means a set of secondary coils mounted in the freeboard area that carries a refrigerant or other chilled substance to provide a chilled air blanket above the solvent vapor. A primary condenser that is capable of maintaining a temperature, in oF, in the center of the chilled air blanket at not more than 30 percent of the solvent’s boiling point is both a primary condenser and a freeboard refrigeration device.

**“Idling Mode”** means the time period when a solvent cleaning machine is not actively cleaning or drying parts and the sump heating coils, if present, are turned on.

**“Immersion Cold Cleaning Machine”** means a cold solvent cleaning machine in which the parts are immersed in the solvent when being cleaned or dried. A remote reservoir cold cleaning machine that is also an immersion cold cleaning machine is considered an immersion cold cleaning machine for purposes of this Section.

**“In-line Vapor Cleaning Machine”** means a vapor solvent cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a continuous supply of parts to be cleaned or dried. These units are fully enclosed except for the conveyor inlet and exit portals.

**“Primary Condenser”** means a series of circumferential cooling coils on a vapor cleaning machine through which a chilled substance is circulated or recirculated to provide continuous condensation of rising solvent vapors and, thereby, creating a concentrated solvent vapor zone.

**“Reduced Room Draft”** means decreasing the flow or movement of air across the top of the freeboard area of a solvent cleaning machine to less than 15.2 meters per minute (50 feet per minute) by methods including, but not limited to, redirecting fans and/or air vents to not blow across the cleaning machine, moving the cleaning machine to a corner where there is less room draft, and constructing a partial or complete enclosure around the cleaning machine.

**“Remote Reservoir Cold Cleaning Machine”** means a solvent cleaning machine in which liquid solvent is pumped to a sink-like work area that immediately drains solvent back into an enclosed container while parts are being cleaned or dried, allowing no solvent to pool in the work area.

**“Soils”** means contaminants that are removed from the parts being cleaned. Soils include, but are not limited to, grease, oils, waxes, metal chips, carbon deposits, fluxes, and tars.

**“Solvent/air Interface”** means, for a vapor cleaning machine, the location of contact between the concentrated solvent vapor layer and the air. This location of contact is defined as the mid-line height of the primary condenser coils. For a cold cleaning machine, it is the location of contact between the liquid solvent and the air.

**“Solvent Cleaning Machine”** means any device or piece of equipment that uses volatile organic compounds, liquid or vapor, to remove soils from parts or to dry parts. Types of solvent cleaning machines include, but are not limited to, batch vapor, in-line vapor, in-line cold, immersion cold, and remote reservoir cold cleaning machines, as well as, airless cleaning and airtight cleaning systems.

**“Superheated Vapor System”** means a system that heats the solvent vapor, either passively or actively, to a temperature 10oF above the solvent’s boiling point. Parts are held in the superheated vapor before exiting the machine to evaporate the liquid solvent on the parts. Hot vapor recycle is an example of a superheated vapor system.

**“Vapor Cleaning Machine”** means a batch or in-line solvent cleaning machine that heats liquid solvent that is used as part of the cleaning or drying cycle. The heated solvent may or may not be boiling. The term does not include machines that do not have a solvent/air interface, such as airless and airtight cleaning systems.

**“Vapor Up Control Switch”** means a thermostatically controlled switch that shuts off or prevents solvent from being sprayed when there is no vapor. On in-line vapor cleaning machines the switch also prevents the conveyor from operating when there is no vapor.

**“Working Mode”** means the time period when the solvent cleaning machine is actively cleaning or drying parts.

**“Working Mode Cover”** means any cover or solvent cleaning machine design that allows the cover to shield the cleaning machine openings from outside air disturbances while parts are being cleaned or dried in the cleaning machine. A cover that is used during the working mode is opened only during parts entry and removal.

33.3 Standards for batch cold cleaning machines. This paragraph applies to all batch cold cleaning machines. The provisions of this paragraph shall not apply if the owner or operator of the cold cleaning machine demonstrates and the Department approves in writing that compliance with the paragraph will result in unsafe operating conditions.

33.3.1 Immersion cold cleaning machines shall have a freeboard ratio of 0.75 or greater

unless the machines are equipped with working mode covers that shall be closed except when parts are being placed into or being removed from the machine. Covers shall be free of cracks, holes, and other defects, and easily opened or closed.

33.3.2 Immersion cold cleaning machines and remote reservoir cold cleaning machines shall:

33.3.2.1 Have a permanent, conspicuous label summarizing the operating requirements in section 33.3.3.

33.3.2.2 Be equipped with a downtime mode cover that shall be closed at all times except during cleaning or drying of parts or the addition or removal of solvent. Cover shall be free of cracks, holes, and other defects, and readily opened or closed.

33.3.3 Cold cleaning machines shall be operated in accordance with the following procedures:

33.3.3.1 Waste solvent, still bottoms, and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

33.3.3.2 Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts shall be positioned so that solvent drains directly back to the cleaning machine.

33.3.3.3 Flushing of parts using a flexible hose or other flushing device shall be performed only within the freeboard area of the cold cleaning machine. The solvent flushing shall be a solid fluid stream, not an atomized or shower spray, at a pressure that does not exceed 10 pounds per square inch gauge (psig).

33.3.3.4 Work area fans shall be located and positioned so that they do not blow across the opening of the cold cleaning machine.

33.3.3.5 Sponges, fabric, wood, leather, paper products, and other absorbent materials shall not be cleaned or dried in the cold cleaning machine.

33.3.3.6 Any solvent bath agitator shall be operated to produce a rolling motion of the solvent with no observable splashing of the solvent against the tank walls or the parts being cleaned. Air agitated solvent baths may not be used.

33.3.3.7 Spills during solvent transfer and use of the cold cleaning machine shall be cleaned up immediately, and the wipe rags or other absorbent material shall be immediately stored in covered containers for disposal or recycling.

33.3.3.8 The owner or operator shall ensure that the solvent level does not exceed the fill line.

33.3.4 On and after November 11, 2002, no person shall use, sell, or offer for sale for use in a cold cleaning machine any solvent with a vapor pressure of 1.0 millimeters of mercury (mm Hg) or greater, measured at 20oC (68oF) that contains volatile organic compounds.

33.3.5 On and after November 11, 2002, a person who sells or offers for sale any solvent containing volatile organic compounds for use in a cold cleaning machine shall provide, to the purchaser, the following written information:

33.3.5.1 The name and address of the solvent supplier.

33.3.5.2 The type of solvent including the product or vendor identification number.

33.3.5.3 The vapor pressure of the solvent measured in mm Hg at 20oC (68oF).

33.3.6 The owner or operator of a cold cleaning machine shall maintain for not less than five years, and shall provide to the Department, on request, the information specified in paragraph 33.3.5. An invoice, bill of sale, certificate that corresponds to a number of sales, Material Safety Data Sheet (MSDS), or other appropriate documentation acceptable to the Department may be used to comply with this Section.

33.4 Standards for batch vapor cleaning machines. This paragraph applies to batch vapor cleaning machines.

33.4.1 Batch vapor cleaning machines shall be equipped with:

33.4.1.1 Either a fully enclosed design or idling and downtime mode covers that completely covers the cleaning machine openings when in place. Covers shall be free of cracks, holes, and other defects, and readily opened or closed without disturbing the vapor zone. If the solvent cleaning machine opening is

greater than 10 square feet, the covers must be powered. If a lip exhaust is used, the closed covers shall be below the level of the lip exhaust.

33.4.1.2 A freeboard ratio of 0.75 or greater.

33.4.1.3 A primary condenser.

33.4.1.4 A vapor up control switch.

33.4.1.5 A device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

33.4.1.6 A vapor level control device that shuts off the sump heat if the vapor level in the vapor cleaning machine rises above the height of the primary condenser.

33.4.1.7 An automated parts handling system that moves parts or parts baskets at a speed of 3.4 meters per minute (11 feet per minute) or less when the parts are entering or exiting the vapor zone. If the parts or parts basket being cleaned or dried occupy more than 50% of the solvent/air interface area, the automated parts handling system shall move parts or parts baskets at a speed of 0.93 meters per minute (3 feet per minute) or less.

33.4.1.8 Each vapor cleaning machine that uses a lip exhaust shall be designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber. The concentration of organic solvent in the exhaust shall not exceed 25 parts per million, averaged over one complete adsorption cycle or 24 hours, whichever is less.

33.4.1.9 A permanent, conspicuous label summarizing the operating requirements in paragraph 33.4.4 of this Section.

33.4.2 In addition to the requirements of section 33.4.1, the owner or operator of a batch vapor cleaning machine with a solvent/air interface area of 13 square feet or less shall implement one of the following control options:

33.4.2.1 A working mode cover, a freeboard ratio of 1.0, and superheated vapor.

33.4.2.2 Superheated vapor and a freeboard refrigeration device operated to ensure that the chilled air blanket temperature is no greater than 30 percent of the solvent's boiling point.

33.4.2.3 A working mode cover and a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point.

33.4.2.4 Reduced room draft, a freeboard ratio of 1.0, and superheated vapor.

33.4.2.5 Reduced room draft and a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point.

33.4.2.6 A freeboard ratio of 1.0 and a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point.

33.4.2.7 Dwell and a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point. Dwell shall be not less than 35 percent of the dwell time determined for the part or parts basket.

33.4.2.8 Reduced room draft, a freeboard ratio of 1.0, and dwell. Dwell shall be not less than 35 percent of the dwell time determined for the part or parts basket.

33.4.2.9 A freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point and a carbon adsorber that reduces solvent emissions in the exhaust to a level not to exceed 25 parts per million, averaged over one complete adsorption cycle or 24 hours, whichever is less.

33.4.2.10 A freeboard ratio of 1.0, superheated vapor, and a carbon adsorber that reduces solvent emissions in the exhaust to a level not to exceed 25 parts per million, averaged over one complete adsorption cycle or 24 hours, whichever is less.

33.4.3 In addition to the requirements of section 33.4.1, the owner or operator of a batch vapor cleaning machine with a solvent/air interface area of greater than 13 square feet shall implement one of the following control options:

33.4.3.1 A freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point, a freeboard ratio of 1.0, and superheated vapor.

33.4.3.2 Dwell, a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point, and reduced room draft. Dwell shall be not less than 35 percent of the dwell time determined for the part or parts basket.



33.4.3.3 A working mode cover, a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point, and superheated vapor.

33.4.3.4 Reduced room draft, freeboard ratio of 1.0, and superheated vapor.

33.4.3.5 A freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point, reduced room draft, and superheated vapor.

33.4.3.6 A freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point, a freeboard ratio of 1.0, and reduced room draft.

33.4.3.7 A freeboard refrigeration device operated to ensure that the chilled air blanket temperature is no greater than 30 percent of the solvent's boiling point, superheated vapor, and a carbon adsorber that reduces solvent emissions in the exhaust to a level not to exceed 25 parts per million, averaged over one complete adsorption cycle or 24 hours, whichever is less.

33.4.4 Batch vapor cleaning machines shall be operated in accordance with the following procedures:

33.4.4.1 Waste solvent, still bottoms, and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

33.4.4.2 Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts shall be positioned so that solvent drains directly back to the batch vapor cleaning machine. A superheated vapor system shall be an acceptable alternate technology.

33.4.4.3 Parts or parts baskets shall not be removed from the batch vapor cleaning machine until dripping has ceased.

33.4.4.4 Flushing of parts using a flexible hose or other flushing device shall be performed within the vapor zone of the batch vapor cleaning machine or within a section of the machine that is not exposed to the ambient air. The solvent flushing shall be a solid fluid stream, not an atomized or shower spray.

33.4.4.5 When the cover is open, the batch vapor cleaning machine shall not be exposed to drafts greater than 40 meters per minute (132 feet per minute), as measured between 1 and 2 meters (3.3 and 6.6 feet) upwind and at the same elevation as the tank lip.

33.4.4.6 Sponges, fabric, wood, leather, paper products, and other absorbent materials shall not be cleaned or dried in the batch vapor cleaning machine.

33.4.4.7 Spills during solvent transfer and use of the batch vapor cleaning machine shall be cleaned up immediately, and the wipe rags or other absorbent material shall be immediately stored in covered containers for disposal or recycling.

33.4.4.8 Work area fans shall be located and positioned so that they do not blow across the opening of the batch vapor cleaning machine.

33.4.4.9 During startup of each batch vapor cleaning machine, the primary condenser shall be turned on before the sump heater.

33.4.4.10 During shutdown of each batch vapor cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.

33.4.4.11 When solvent is added to or drained from the batch vapor cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings, and the discharge end of the pipe shall be located beneath the liquid solvent surface.

33.4.4.12 The idling and downtime mode covers shall be closed at all times during idling and downtimes except during maintenance of the machine when the solvent has been removed and during addition of solvent to the machine.

33.4.4.13 If a lip exhaust is used on the open top batch vapor cleaning machine, the ventilation rate shall not exceed 20 m<sup>3</sup>/min/m<sup>2</sup> (65 ft<sup>3</sup>/min/ft<sup>2</sup>) of batch vapor cleaning machine open area, unless a higher rate is necessary to meet OSHA requirements.

33.5 Standards for in-line cleaning machines. This paragraph applies to in-line cold and vapor cleaning machines.

33.5.1 In-line cleaning machines shall be equipped with:

33.5.1.1 Either a fully enclosed design or idling and downtime mode covers that completely covers the in-line cleaning machine openings when in place. Covers shall be free of cracks, holes, and other defects, and readily opened or closed without disturbing the vapor zone.

33.5.1.2 A freeboard ratio of 0.75 or greater.

33.5.1.3 A primary condenser.

33.5.1.4 A vapor up control switch.

33.5.1.5 A device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils.

33.5.1.6 A vapor level control device that shuts off the sump heat if the vapor level in the in-line cleaning machine rises above the height of the primary condenser.

33.5.1.7 An automated parts handling system that moves parts or parts baskets at a speed of 3.4 meters per minute (11 feet per minute) or less when the parts are entering or exiting the vapor zone. If the parts or parts basket being cleaned or dried occupy more than 50% of the solvent/air interface area, the automated parts handling system shall move parts or parts baskets at a speed of 0.93 meters per minute (3 feet per minute) or less.

33.5.1.8 Each in-line machine that uses a lip exhaust shall be designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber. The concentration of organic solvent in the exhaust shall not exceed 25 parts per million, averaged over one complete adsorption cycle or 24 hours, whichever is less.

33.5.1.9 A permanent, conspicuous label summarizing the operating requirements in paragraph 33.5.3.

33.5.2 In addition to the requirements of section 33.5.1, the owner or operator of an in-line cleaning machine shall implement one of the following control options:

33.5.2.1 A freeboard ratio of 1.0 and superheated vapor.

33.5.2.2 A freeboard ratio of 1.0 and a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point.

33.5.2.3 Dwell and a freeboard refrigeration device operated to ensure that the chilled air blanket temperature, in oF, is no greater than 30 percent of the solvent's boiling point. Dwell shall be not less than 35 percent of the dwell time determined for the part or parts basket.

33.5.2.4 Dwell and a carbon adsorber that reduces solvent emissions in the exhaust to a level not to exceed 25 parts per million, averaged over one complete adsorption cycle or 24 hours, whichever is less. Dwell shall be not less than 35 percent of the dwell time determined for the part or parts basket.

33.5.3 In-line cleaning machines shall be operated in accordance with the following procedures:

33.5.3.1 Waste solvent, still bottoms, and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

33.5.3.2 Parts shall be oriented so that the solvent drains freely from the parts. Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts shall be positioned so that solvent drains directly within the in-line cleaning machine.

33.5.3.3 Parts or parts baskets shall not be removed from the in-line cleaning machine until dripping has ceased.

33.5.3.4 Flushing of parts using a flexible hose or other flushing device shall be performed within the vapor zone of the in-line cleaning machine or within a section of the machine that is not exposed to the ambient air. The solvent flushing shall be a solid fluid stream, not an atomized or shower spray.

33.5.3.5 When the in-line cleaning machine is operating, the entrance and exit portals shall not be exposed to drafts greater than 40 meters per minute (132 feet per minute), as measured between 1 and 2 meters (3.3 and 6.6 feet) upwind and at the same elevation as the portals.

33.5.3.6 Sponges, fabric, wood, leather, paper products, and other absorbent materials shall not be cleaned or dried in the in-line cleaning machine.

33.5.3.7 Spills during solvent transfer and use of the in-line cleaning machine shall be cleaned up immediately, and the wipe rags or other absorbent material shall be immediately stored in covered containers for disposal or recycling.

33.5.3.8 Work area fans shall be located and positioned so that they do not blow across the openings of the in-line cleaning machine.

33.5.3.9 During startup of each in-line cleaning machine, the primary condenser shall be turned on before the sump heater.

33.5.3.10 During shutdown of each in-line cleaning machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.

33.5.3.11 When solvent is added to or drained from the in-line cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the discharge end of the pipe shall be located beneath the liquid solvent surface.

33.5.3.12 The idling and downtime mode covers shall be closed at all times during idling and downtimes except during maintenance of the machine when the solvent has been removed and during addition of solvent to the machine.

33.5.3.13 If a lip exhaust is used on the on-line cleaning machine, the ventilation rate shall not exceed 20 m<sup>3</sup>/min/m<sup>2</sup> (65 ft<sup>3</sup>/min/ft<sup>2</sup>) of on-line cleaning machine open area, unless a higher rate is necessary to meet OSHA requirements.

33.5.3.14 Minimize openings during operation so that entrances and exits silhouette workloads with an average clearance between the parts and the edge of the portal opening of less than 10 centimeters (4 inches) or less than 10 percent of the width of the opening.

33.6 Standards for cleaning machines not having a solvent/air interface. This paragraph applies to cleaning machines that do not have a solvent/air interface. These cleaning machines include, but are not limited to, airless and airtight cleaning systems.

33.6.1 The owner or operator of each machine shall maintain a log of solvent additions and deletions for each machine including the weight of solvent contained in activated carbon or other adsorbent material used to control emissions from the cleaning machine.

33.6.2 The owner or operator of each machine shall demonstrate that the emissions from each machine, on a three-month rolling average, are equal to or less than the allowable emission limit determined using Equation 33-1 below.

$$EL = 330 (\text{Vol})^{0.6} \quad (\text{Eq. 1})$$

where:

EL = the three-month rolling average monthly emission limit (kilograms/month).

Vol = the cleaning capacity of machine (cubic meters).

33.6.3 The owner or operator of each machine shall operate the machine in conformance with the manufacturer's instructions and good air pollution control practices.

33.6.4 The owner or operator of each machine equipped with a carbon adsorber shall maintain and operate the carbon adsorber system to reduce solvent emissions in the exhaust to a level not exceed 25 parts per million, averaged over one complete adsorption cycle or 24 hours, whichever is less.

33.6.5 A permanent, conspicuous label summarizing the operating requirements in section 33.6.7 below.

33.6.6 The owner or operator of a solvent cleaning machine complying with paragraph 33.6 shall demonstrate compliance with the applicable 3-month rolling average monthly emission limit on a monthly basis. If the applicable 3-month rolling average monthly emission limit is not met, an exceedance has occurred. All exceedances shall be reported to the Department within 30 days of the determination of the exceedance.

33.6.7 Cleaning machines not having a solvent/air interface shall be operated in accordance with the following procedures:

33.6.7.1 Waste solvent, still bottoms, and sump bottoms shall be collected and stored in closed containers. The closed containers may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.

33.6.7.2 Cleaned parts shall be drained at least 15 seconds or until dripping ceases, whichever is longer. Parts having cavities or blind holes shall be tipped or rotated while the part is draining. During the draining, tipping or rotating, the parts shall be positioned so that solvent drains directly into the cleaning machine.

33.6.7.3 Parts or parts baskets shall not be removed from the cleaning machine until dripping has ceased.

33.6.7.4 Sponges, fabric, wood, leather, paper products, and other absorbent

materials shall not be cleaned or dried in the cleaning machines.

33.6.7.5 Spills during solvent transfer and use of the cleaning machines shall be cleaned up immediately, and the wipe rags or other absorbent material shall be immediately stored in covered containers for disposal or recycling.

33.6.7.6 Work area fans shall be located and positioned so that they do not blow across the opening of the cleaning machine.

33.6.7.8 When solvent is added to or drained from the cleaning machine, the solvent shall be transferred using threaded or other leakproof couplings and the discharge end of the pipe shall be located beneath the liquid solvent surface.

33.6.8 The owner or operator of a solvent cleaning machine complying with paragraph f. shall maintain records and determine compliance with the applicable provisions in accordance with the following:

33.6.8.1 On the first operating day of every month ensure that the solvent cleaning machine system contains only clean liquid solvent. This includes, but is not limited to, fresh unused solvent, recycled solvent, and used solvent that have been cleaned of soils. A fill line must be indicated during the first month the measurements are made. The solvent level within the machine must be returned to the same fill-line each month, immediately prior to calculating monthly emissions. The solvent cleaning machine does not have to be emptied and filled with fresh unused solvent prior to the calculations.

33.6.8.2 Using the records of all solvent additions and deletions for the previous monthly reporting period, determine total solvent emissions, E, using Equation 33-2, below:

$$E = SA - LSR - SSR \quad (\text{Eq. 2})$$

where:

E = the total VOC solvent emissions from the solvent cleaning machine during the most recent monthly reporting period (kilograms of solvent per month).

SA = the total amount of VOC liquid solvent added to the solvent cleaning machine during the most recent monthly reporting period (kilograms of solvent per month).

LSR = the total amount of VOC liquid solvent removed from the solvent cleaning machine during the most recent monthly reporting period (kilograms of solvent per month).

SSR = the total amount of VOC solvent removed from the solvent cleaning machine in solid waste during the most recent monthly reporting period (kilograms of solvent per month), as determined from tests conducted using Method 25D in appendix A of 40 CFR part 60 or by engineering calculations included in the compliance report.

33.6.8.3 Determine the monthly rolling average solvent emission, EA, using Equation 33-3, below:

$$EA = (E_{j=1} + E_{j=2} + E_{j=3}) / 3 \quad (\text{Eq. 3})$$

where:

EA = the average VOC solvent emissions over the preceding 3 monthly reporting periods (kilograms of solvent per month).

E = the total VOC solvent emissions for each month (j) for the most recent 3 monthly reporting periods (kilograms of solvent per month).

j = 1 = the most recent monthly reporting period.

j = 2 = the monthly reporting period immediately prior to j = 1.

j = 3 = the monthly reporting period immediately prior to j = 2.

33.7 Alternative standard. As an alternative to meeting the requirements of sections 33.4 or 33.5, the owner or operator of a batch vapor or in-line cleaning machine can elect to comply with the requirements of section 33.7.1 through 33.7.4. The owner or operator shall maintain records sufficient to demonstrate compliance. The records shall include, at a minimum, the quantity of solvent added to and removed from the solvent cleaning machine, the dates of the addition and removal, and the calculations of the monthly rolling 3-month average emission limit.

33.7.1 The owner or operator shall:

33.7.1.1 Maintain a log of solvent additions and deletions for each solvent cleaning machine.

33.7.1.2 Ensure that emissions from each solvent cleaning machine are equal to or less than the allowable emission limit presented in Table 1.

Table 33-1 --Emission Limits for Batch Vapor and In-line Cleaning Machines

<u>Solvent cleaning machine</u>	<u>3-Month rolling average monthly emission limit</u> (kilograms/square meters/month)
Batch vapor cleaning machines	150
Existing in-line cleaning machines	153
New in-line cleaning machines	99

33.7.2 In addition to the requirements of section 33.7.1, the owner or operator of a cleaning machine shall comply with the following:

33.7.2.1 Sections 33.4.1.9 and 33.4.4 for batch vapor cleaning machines.

33.7.2.2 Sections 33.5.1.9 and 33.5.3 for in-line cleaning machines.

33.7.3 The owner or operator of a solvent cleaning machine complying with section 33.7 shall demonstrate compliance with the applicable 3-month rolling average monthly emission limit on a monthly basis. If the applicable 3-month rolling average monthly emission limit is not met, an exceedance has occurred. All exceedances shall be reported to the Department within 30 days of the determination of the exceedance.

33.7.4 The owner or operator of a solvent cleaning machine complying with section 33.7 shall maintain records and determine compliance with the applicable provisions in accordance with the following:

33.7.4.1 On the first operating day of every month ensure that the solvent cleaning machine system contains only clean liquid solvent. This includes, but is not limited to, fresh unused solvent, recycled solvent, and used solvent that have been cleaned of soils. A fill line must be indicated during the first month the measurements are made. The solvent level within the machine must be returned to the same fill-line each month, immediately prior to calculating monthly emissions. The solvent cleaning machine does not have to be emptied and filled with fresh unused solvent prior to the calculations.

33.7.4.2 Using the records of all solvent additions and deletions for the previous monthly reporting period, determine total solvent emissions, E, using Equation 33-4, below:

$$E = (SA - LSR - SSR) / \text{AREA} \quad (\text{Eq. 4})$$

where:

E = the total VOC solvent emissions from the solvent cleaning machine during the most recent monthly reporting period (kilograms of solvent per square meter of solvent/air interface area per month).

SA = the total amount of VOC liquid solvent added to the solvent cleaning machine during the most recent monthly reporting period (kilograms of solvent per month).

LSR = the total amount of VOC liquid solvent removed from the solvent cleaning machine during the most recent monthly reporting period (kilograms of solvent per month).

SSR = the total amount of VOC solvent removed from the solvent cleaning machine in solid waste during the most recent monthly reporting period (kilograms of solvent per month), as determined from tests conducted using Method 25D in appendix A of 40 CFR part 60 or by engineering calculations included in the compliance report.

Area = the solvent/air interface area of the solvent cleaning machine (square meters).

33.7.4.3 Determine the monthly rolling average solvent emission, EA, using Equation 33-5, below:

$$EA = (E_{j=1} + E_{j=2} + E_{j=3}) / 3 \quad (\text{Eq. 5})$$

where:

EA = the average VOC solvent emissions over the preceding 3 monthly reporting periods (kilograms of solvent per square meter of solvent/air interface area per month).

E = the total VOC solvent emissions for each month (j) for the most recent 3 monthly reporting periods (kilograms of solvent per square meter of solvent/air interface area per month).

j = 1 = the most recent monthly reporting period.

j = 2 = the monthly reporting period immediately prior to j = 1.

j = 3 = the monthly reporting period immediately prior to j = 2.

33.8 Monitoring. The owner or operator of a solvent cleaning machine subject to the provisions of paragraphs d. through g. of this Section shall conduct monitoring as follows.

33.8.1 If a freeboard refrigeration device is used to comply with this Section, the owner or operator shall use a thermometer or thermocouple to measure the temperature at the center of the air blanket during the idling mode. Measurements and recordings shall be made weekly.

33.8.2 If a superheated vapor system is used to comply with this Section, the owner or operator shall use a thermometer or thermocouple to measure the temperature at the center of the superheated solvent vapor zone while the solvent cleaning machine is in the idling mode. Measurements and recordings shall be made weekly.

33.8.3 If a cover (working mode, downtime mode, and/or idling mode cover) is used to comply with this Section, the owner or operator shall conduct a visual inspection to determine if the cover is opening and closing properly, completely covers the cleaning machine openings when closed, and is free of cracks, holes, and other defects. Observations and recordings shall be made monthly.

33.8.4 If dwell is used to comply with this Section, the owner or operator shall determine the actual dwell time by measuring the period of time that parts are held within the freeboard area of the solvent cleaning machine after cleaning or drying. Measurements and recordings shall be made monthly.

33.8.5 The owner or operator shall determine the automated parts handling system speed by measuring the time it takes to travel a measured distance. The speed is equal to the distance in meters or feet divided by the time in minutes (meters or feet per minute). Measurements and recordings shall be made monthly.

33.8.6 If reduced room draft is used to comply with this Section, the owner or operator shall determine the average wind speed and controlling room parameters (i.e., redirecting fans, closing doors and windows, etc.) as follows.

33.8.6.1 Initially measure the wind speed within 6 inches above the top of the freeboard area of the solvent cleaning machine in accordance with the following:

33.8.6.1.1 Determine the direction of the wind current by slowly rotating a velometer or similar device until the maximum speed is located.

33.8.6.1.2 Orient a velometer in the direction of the wind current at the four corners of the machine.

33.8.6.1.3 Record the reading for each corner.

33.8.6.1.4 Average the values obtained at each corner and record the average wind speed.

33.8.6.2 Record the room parameters established during the initial compliance test to achieve the reduced room draft.

33.8.6.3 Quarterly monitor of the wind speed in accordance with paragraph h.6.i.

33.8.6.4 Weekly monitoring of the room parameters as specified in paragraph h.6.

33.8.7 If an enclosure (full or partial) is used to achieve reduced room draft, the owner or operator shall conduct an initial monitoring test of the wind speed within the enclosure by slowly rotating a velometer inside the entrance to the enclosure until the maximum speed is located and recorded. Measurements and recordings shall be made monthly. The owner or operator shall also conduct a monthly visual inspection of the enclosure to determine if it is free of cracks, holes, and other defects.

33.8.8 The owner or operator of a using a carbon adsorber to comply with this Section shall measure and record the concentration of VOC solvent in the exhaust of the carbon adsorber whenever the solvent cleaning machine is in the working mode and/or is venting to the carbon adsorber. The concentration shall be determined through a sampling port within the exhaust outlet that is easily accessible, located downstream from no other inlet, and located at least 8 stack or duct diameters downstream and 2 stack or duct diameters upstream from any flow disturbance such as a bend, expansion, contraction, or outlet

33.9 Recordkeeping. The owner or operator of a solvent cleaning machine subject to this Section shall maintain the following records in a readily accessible location for a least 5 years and shall make these records available to the Department, upon verbal or written request:

33.9.1 The log of operating times for the carbon adsorber, if applicable.

33.9.2 The maintenance record for the carbon adsorber, such as replacement of the activated carbon bed, if applicable.

33.9.3 The maintenance record for each control option used, such as replacement of a heater in the superheated vapor recycle system, if applicable.

33.9.4 The logs and calculations demonstrating compliance with the allowable emission limits in paragraphs 33.6 and 33.7 of this Section.

33.9.5 The results of all monitoring conducted in accordance with the requirements in paragraph h. of this Section.

33.10 Reporting. The owner of operator of a solvent cleaning machine subject to this Section shall:

33.10.1 Comply with the initial compliance certification requirements of Section 5.a. of this regulation.

33.10.2 Comply with the requirements of Section 5.2 of this regulation regarding reports of excess emissions, as well as complying with other State of Delaware exceedance reporting requirements.

#### **5 DE Reg. 1106 (11/1/01)**

**34.0 Reserved**

**35.0 Reserved**

#### **36.0 Stage II Vapor Recovery**

36.1 Applicability.

36.1.1 This Section applies to any gasoline dispensing facility located in the State of Delaware, except:

36.1.1.1 Any gasoline dispensing facility, which never has a throughput of greater than 10,000 gallons of gasoline, shall be subject only to the requirements of section 36.5.2. Any gasoline dispensing facility that ever exceeds this throughput shall be subject to all of the requirements of this Section, and shall remain subject to these requirements even if its throughput later falls below the exemption throughput.

36.1.1.2 Any gasoline dispensing facility that is used exclusively for refueling marine vehicles, aircraft, farm equipment, and/or emergency vehicles.

36.1.2 On and after May 1, 2003, the requirements of section 36.6 apply to any owner and/or operator of any company that performs compliance testing of Stage II Systems within the State of Delaware.

36.1.3 The requirements of this Section are in addition to all other State and Federal requirements, to include the permitting requirements of Regulation No. 2 of the State of Delaware "Regulations Governing the Control of Air Pollution." Any gasoline dispensing facility that is currently subject to any state or federal rule promulgated pursuant to the Clean Air Act Amendments of 1977 by exceeding an applicability threshold is and shall remain subject to those provisions.

36.1.4 Compliance Schedule

Any gasoline dispensing facility subject to the requirements of this Section shall be in compliance as follows: Any facility that first commences operations:

36.1.4.1 Before November 15, 1990 and that has any throughput of greater than 10,000 gallons but less than 100,000 gallons: by November 15, 1994 for facilities located in New Castle and Kent Counties, and by November 15, 1996 for facilities located in Sussex.

36.1.4.2. Before November 15, 1990 and that has any throughput of at least 100,000 gallons: by November 15, 1993 for facilities located in New Castle and Kent Counties, and by November 15, 1995 for facilities located in Sussex County.

36.1.4.3 On or after November 15, 1990 and before January 11, 1993: by May 15, 1993 for facilities located in New Castle and Kent Counties, and by May 15, 1995 for facilities located in Sussex County.

36.1.4.4 On or after January 11, 1993: upon commencement of operations.

36.1.5 Any Stage II vapor recovery system installed prior to November 15, 1992, and using dual vapor recovery hoses (not coaxial) shall be retrofitted with coaxial hoses no later than January 1, 1994, or upon any vapor system modification, whichever is first. Any system installed after November 15, 1992 shall be equipped with coaxial hoses.

36.1.6 Remote vapor check valves in balance type systems installed prior to November 15, 1992, shall be retrofitted with check valves located in the nozzle no later than January 1, 1994, or upon any vapor system modification, whichever is first. Any system installed after November 15, 1992 shall be equipped with remote check valves located in the nozzle.

## 36.2 Definitions

"**Assist System**" means a system that creates a vacuum to assist the movement of vapors back into the storage tank.

"**Balance System**" means a system where pressure develops in the vehicle tank during fueling operations, and vacuum in the storage tank created when the fuel is removed, forces displaced vapors out the vehicle tank and back into the storage tank.

## 36.3 Standards

36.3.1 The owner and/or operator of any gasoline dispensing facility subject to the requirements of this Section shall:

36.3.1.1 Design, install, operate, and maintain one of the Stage II Vapor Recovery Systems identified in section 36.6.

36.3.1.2 For systems with manifolded vapor lines, the liquid shall return into the lowest octane tank. For non-manifolded systems with separate vapor lines, the liquid shall return to the tank that has the same product as is dispensed at the nozzle where the liquid was introduced into the vapor lines.

36.3.1.3 On and after May 1, 2003, install and maintain a vapor shear valve that functions similarly to the product shear valve.

36.3.1.4 Conspicuously post "Operating Instructions" on both sides of each gasoline dispenser. Such instructions shall include:

36.3.1.4.1 A clear description of how to correctly dispense gasoline.

36.3.1.4.2 A warning that repeated attempts to continue dispensing gasoline, after the system has indicated that the vehicle fuel tank is full (by automatically shutting off), may result in spillage or recirculation of gasoline.

36.3.1.4.3 A toll-free telephone number to report problems experienced with the vapor recovery system to the Department.

36.3.2 At least one representative (an owner, facility manager, or designated employee) from each facility, or facilities under common ownership, shall attend a training program on the operation and maintenance requirements of the Stage II equipment that is selected for installation and/or installed on their facility premises. Acceptable forms of training include equipment manufacturer's seminars, classes or workshops, or any other training approved by the Department.

36.3.2.1 Verification, such as a certificate of attendance from the training program, shall be obtained by the attendee within three (3) months of the installation of the Stage II system. The certificate shall display the name of the person who completed the training program.

36.3.2.2 The representative that completed the training program is then responsible for informing all facility employees about conducting routine maintenance pursuant to section 36.3.3 and about the operation and maintenance of the Stage II system. The representative shall maintain proof of training for all employees who will be conducting daily inspections. If such representative leaves that facility, or the company owning several facilities, another representative shall take and successfully complete the training within three (3) months.

36.3.2.3 Training shall include, but not be limited to, the following subjects:

36.3.2.3.1 Purposes and effects of the Stage II Vapor Control Program.

36.3.2.3.2 Equipment operation and function specific to their facility's equipment.

36.3.2.3.3 Maintenance schedules and requirements for the facility's equipment.

36.3.2.3.4 Equipment warranties.

36.3.2.3.5 Equipment manufacturer contracts (names, addresses, and phone numbers) for parts and service.

36.3.3 Each day personnel trained pursuant to section 36.3.2 shall perform routine maintenance inspections and record the inspection results.

36.3.3.1 Such inspections shall consist of, but not limited to, inspection of the Stage II system for the following defects:

36.3.3.1.1 A faceplate or face cone of a balance or assist system nozzle that does not make a good seal with a vehicle fill tube, or the accumulated damage to the faceplate or face cone is over 25% of its' surface.



- 36.3.3.1.2 A vapor assist system nozzle fitted with an efficiency compliance device that is damaged over 25% of its' surface.
- 36.3.3.1.3 A nozzle bellows with a triangular tear measuring ½ inch or more to a side, a hole measuring ½ inch or more in diameter, or a slit or tear measuring one inch or more in length.
- 36.3.3.1.4 A nozzle bellows or efficiency compliance device that is loosely attached to the nozzle body, not attached by a manufacturer approved method, or a vapor check valve frozen in the open position.
- 36.3.3.1.5 A nozzle liquid shutoff mechanism that malfunctions in any manner, where the spring or latching knurl is damaged or missing.
- 36.3.3.1.6 A nozzle with a vapor check valve that is defective, or a hose with a disconnected or damaged breakaway.
- 36.3.3.1.7 A vapor assist system nozzle spout that is damaged and the vapor collection holes are obstructed.
- 36.3.3.1.8 A dispenser mounted vacuum pump that is not functioning.
- 36.3.3.1.9 A vacuum assist system with a central vacuum unit or vapor processing unit that is inoperative.
- 36.3.3.1.10 A hose retractor that does not fully retract.
- 36.3.3.1.11 Any other component required by the Department for use in the system that is missing, disconnected, or malfunctioning.
- 36.3.3.2 The owner and/or operator shall post "Out of Order" signs and "Bag-out" the nozzle associated with any part of the defective vapor recovery system until said system has been repaired or replaced.

#### 36.4 Testing Requirements

- 36.4.1 Any gasoline dispensing facility subject to the requirements of section 36.3.1.1 shall perform and pass the following tests in accordance with the test methods and procedures stated, or as otherwise approved by the Department and the Administrator of the EPA. Where any of the following test methods and procedures, in the opinion of the Department, conflict and/or are redundant with those specified in any CARB Executive Order adopted by reference in section 36.6, the following test methods and procedures shall apply.
  - 36.4.1.1 The following tests shall be performed and passed within ten (10) days of installation of the Stage II vapor recovery system:
    - 36.4.1.1.1 A Pressure Decay/Leak Test, conducted in accordance with Test Procedure TP-96-1 of the San Diego Protocol, Revision III dated 3-1-96. This test procedure is hereby incorporated by reference.
    - 36.4.1.1.2 A Dynamic Backpressure and Liquid Blockage Test, conducted in accordance with the procedures in "Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites, PEI/RP300-97", Chapter 8. This test procedure is hereby incorporated by reference.
    - 36.4.1.1.3 For assist systems, an Air to Liquid Volume Ratio Test conducted in accordance with the procedures in "Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites, PEI/RP300-97", Chapter 9. This test procedure is hereby incorporated by reference.
    - 36.4.1.1.4 A Vapor Tie Test, conducted in accordance with Test Procedure TP-96-1 of the San Diego Protocol, Revision III dated 3-1-96. This test procedure is hereby incorporated by reference.
  - 36.4.1.2 The following tests shall be performed and passed annually for each Stage II vapor recovery system according to the test procedures stated in paragraph 36.4.1.1 of this Section:
    - 36.4.1.2.1 A Pressure Decay/Leak Test.
    - 36.4.1.2.2 For Balance Systems, A Dynamic Backpressure and Liquid Blockage Test.
    - 36.4.1.2.3 For Assist Systems, An Air to Liquid Volume Ratio Test.
  - 36.4.1.3 Any additional testing(s) required by the Department or the manufacturer shall be carried out according to the schedule stated in any permit issued pursuant to Regulation No. 2.
- 36.4.2 The Department may require the performance of any of the tests identified in paragraph 36.4.1 of this Section at anytime at the owner's expense.

36.4.3 Written notification shall be submitted to the Department not less than ten (10) working days prior to the performance of any compliance test, unless approval by the Department is granted to the contrary.

36.4.4 The owner and/or operator and test contractor shall report all test failures to the Department within twenty-four (24) hours of the failure.

36.4.5 The owner and/or operator shall submit the following to the Department within thirty (30) days of the test date:

36.4.5.1 the actual test date; and

36.4.5.2 the installing and/or testing companies' name(s), address(es), and phone number(s); and

36.4.5.3 if any corrective action was performed pursuant to paragraph 36.5.4.2 then submit all information specified in 36.5.4.

e. Recordkeeping and Reporting

36.4.6 The owner and/or operator of a gasoline dispensing facility subject to the requirements of this Section shall keep on the facility premises and in a form acceptable to the Department, all of the following information. This information shall be retained for at least three (3) years from the date of record and shall be made immediately available to the Department upon request.

36.4.6.1 Permits and Applications. Copies of the Stage I and Stage II System permit applications and the current Construction/Operation Permits shall be permanently maintained.

36.4.6.2 Installation and Testing Results. The test results shall be dated, and shall note the installing and test companies' names, addresses, and phone numbers. These records shall be kept on file until they are replaced with new test results verifying proper functioning of the Stage II system.

36.4.6.3 Maintenance Records. Any maintenance conducted on any part of the Stage II vapor recovery system shall be logged on a maintenance record. This maintenance record shall include a general part description, the date repaired or replaced, the replacement part manufacturer's information, and a description of the problem and solution.

36.4.6.4 Inspection Records. A file shall be maintained of all daily inspection reports including records of daily self-inspections, and any third party inspection records.

36.4.6.5 Compliance Records. A file shall be maintained of all compliance records.

This record shall include:

36.4.6.5.1 Any warning letters and notices of violations issued by the Department to the facility.

36.4.6.5.2 Proof of attendance and completion of a training program for each person trained in accordance with section 36.3.2.2. This does not apply to the records of an employee who is no longer in service for at least one (1) year.

36.4.7 Any gasoline dispensing facility exempted from the requirements of this Section pursuant to section 36.1.1.1 shall maintain records of monthly throughput, and shall furnish these records to the Department upon request. These records shall be maintained on file for a minimum of three years from the date of record.

36.4.8 The owner and/or operator of any facility containing sources subject to this Section shall comply with the requirements of Section 5 of this regulation.

36.5 Compliance Testing Company Requirements

36.5.1 Any owner and/or operator of any company that performs Stage II compliance testing within the State of Delaware shall submit all of the following information to the Department, prior to performing any Stage II compliance testing within the State of Delaware:

36.5.1.1 The name and business mailing address of the Stage II compliance testing company owner and/or operator;

36.5.1.2 The address and telephone number of the facility(ies) from which the daily compliance testing activities of the compliance testing company originate;

36.5.1.3 A written description of the employee training systems in place at the compliance testing company to ensure required compliance tests are performed in accordance with applicable protocols and procedures.

36.5.1.4 Certification by an individual who is a responsible and trained representative of the compliance testing company containing the following language verbatim:

36.5.1.4.1 I certify that I personally examined and am familiar with the information contained in this document and all the attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment; and

36.5.1.4.2 Employee training systems are in place at the company to ensure Stage II compliance tests are performed in accordance with all applicable protocols and procedures; and

36.5.1.4.3 I am fully authorized to make this attestation on behalf of this Stage II Compliance Testing Company.

36.5.2 Any company subject to the requirements of section 36.5 shall notify the Department in writing of any change to any information submitted to the Department within 14 days of the effective date of such change.

36.5.3 No person subject to the requirements of section 36.5 shall perform any Stage II compliance test unless said person has first been trained in accordance to applicable compliance test protocols and procedures.

36.5.4 Any person subject to section 36.5 shall certify to the owner and/or operator of the gasoline dispensing facility that each compliance test performed to meet the requirements of this section was performed in accordance with section 36.4. Certification shall include:

36.5.4.1 The date each compliance test was first performed and the test results; and

36.5.4.2 An itemized list of all corrective action performed on the Stage II system. This list shall include, but not be limited to, component re-installation, tightening, repair or replacement, as necessary, for the system to pass the applicable test(s); and

36.5.4.3 The date each compliance test was performed and passed; and

36.5.4.4 Certification by a responsible and trained representative(s) of the compliance testing company containing the following language verbatim:

36.5.4.4.1 I certify that I personally examined and am familiar with the information contained in this document and all the attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment; and

36.5.4.4.2 I am fully authorized to make this attestation on behalf of this Stage II Compliance Testing Company.

### 36.6 Approved Stage II Vapor Recovery Systems

The following California Air Resources Board (CARB) executive orders are hereby adopted by reference.

Table 36-1:

Number & Date	Description
G-70-7-AD (03/22/93)	Certification of the Hasstech Model VCP-2 and VCP 2A Phase II Vapor Recovery System.
G-70-14-AA (02/08/83)	Recertification of Red Jacket Aspirator Assist Phase II Vapor Recovery System.
G-70-17-AD (05/06/93)	Modification of Certification of the Emco Wheaton Balance Phase II Vapor Recovery System.
G-70-18-C (08/28/79)	Modification of Certification of the Shell Model 75B1 and 75B1-R3 Service Station Phase II Vapor Recovery System.
G-70-23-AC (04/29/96)	Recertification of the Exxon Balance Phase II Vapor Recovery System.
G-70-25-AA (02/08/83)	Recertification of the Atlantic Richfield Balance Phase II Vapor Recovery System.
G-70-33-AB (03/09/84)	Certification of the Modified Hirt VCS-200 Vacuum Assist Phase II Vapor Recovery System.

G-70-36-AD (09/18/92)	Modification of Certification of the OPW Balance Phase II Vapor Recovery System.
G-70-37-B (01/22/80)	Modification of the Certification of the Chevron Balance Phase II Vapor Recovery System with OPW nozzles for Service.
G-70-38-AB (12/19/90)	Recertification of the Texaco Balance Phase II Vapor Recovery System.
G-70-48-AA (02/08/83)	Recertification of the Mobil Oil Balance Phase II Vapor Recovery System.
G-70-49-AA (02/08/83)	Recertification of the Union Balance Phase II Vapor Recovery System.
G-70-52-AM (10/04/91)	Certification of Components for Red Jacket, Hirt and Balance Phase II Vapor Recovery System.
G-70-53-AA (02/08/83)	Recertification of the Chevron Balance Phase II Vapor Recovery System.
G-70-70-AC (06/23/92)	Certification of the Healy Phase II Vapor Recovery System of Service Stations.
<b>Number &amp; Date</b>	<b>Description</b>
G-70-77 (09/15/82)	Certification of the OPW Repair/Replacement Parts and Modification of the Certification of the OPW Balance Phase II Vapor Recovery System.
G-70-78 (05/20/83)	Certification of the E-Z Flo Nozzle Company Rebuilt Vapor Recovery Nozzles and Vapor Recovery Components.
G-70-101-B (11/15/85)	Certification of the E-Z Flo Model 3006 and 3007 Vapor Recovery Nozzles and Use of E-Z Flo Components with OPW Models 11VC and 11 VE Vapor Recovery Nozzles.
G-70-107 (05/15/86)	Certification of Rainbow Petroleum Products Model RA3003, RA3005, RA3006 and RA3007 Vapor Recovery Nozzles and Vapor Recovery Components.
G-70-110 (01/20/87)	Certification of Stage I and II Vapor Recovery Systems for Methanol Fueling Facilities.
G-70-118-AB (03/31/95)	Certification of Amoco V-1 Vapor Recovery System.
G-70-125-AA (03/16/93)	Modification of the Certification of the Husky Model V Phase II Balance Vapor Recovery Nozzle.
G-70-127 (08/16/90)	Certification of the OPW Model 111-V Phase Vapor Recovery Nozzle.
G-70-134 (12/21/90)	Certification of the EZ Flo Rebuilt A-4000 Series and 11V-Series Vapor Recovery System.
G-70-139 (03/17/92)	Addition to the Certification of the Hirt Model VCS-200 Phase II Vapor Recovery System.
G-70-150-AE (07/12/00)	Modification of the Certification of the Gilbarco VaporVac Phase II Vapor Recovery System.
G-70-153-AD (04/03/00)	Modification to the Certification of the Dresser/Wayne WayneVac Phase II Vapor Recovery System.
G-70-154-AA (06/10/97)	Modification to the Certification of the Tokheim MaxVac Phase II Vapor Recovery System.
G-70-159-AB (07/17/95)	Modification of the Certification of the Saber Nozzle for Use with the Gilbarco VaporVac Phase II Vapor Recovery System.
G-70-163-AA (09/04/96)	Certification of the OPW VaporEZ Phase II Vapor Recovery System.
G-70-164-AA (12/10/96)	Modification to the Certification of the Hasstech VCP-3A Vacuum Assist Phase II Vapor Recovery System.
G-70-165 (04/20/95)	Healy Vacuum Assist Phase II Vapor Recovery System.
G-70-169-AA (08/11/97)	Modification to the Certification of the Franklin Electric INTELLIVAC Phase II Vapor Recovery System.
G-70-170 (02/22/96)	Certification of the EZ-flo Rebuilt 5005 and 5015 for use with the Balance Phase II Vapor Recovery System.
G-70-177-AA (06/22/00)	Certification of the VCS400-7 Vacuum Assist Phase II Vapor Recovery System.

G-70-179 (07/02/97)	Certification of the Catlow ICVN-V1 Vacuum Assist Phase II Vapor Recovery System.
G-70-180 (04/17/97)	Order Revoking Certification of the Healy Phase II Vapor Recovery Systems for Gasoline Dispensing Systems.
G-70-183 (03/04/98)	Certification of the Healy/Franklin Vacuum Assist Phase II Vapor Recovery System.
G-70-186 (10/26/98)	Certification of the Healy Model 400 ORVR Vapor Recovery System.
G-70-188 (05/18/99)	Certification of the Catlow ICVN Vapor Recovery Nozzle System for use with the Gilbarco VaporVac Vapor Recovery System.
G-70-191 (08/08/99)	Healy/Franklin VP-1000 Vapor Pump Phase II Vapor Recovery System (Healy ORVR Phase II Vapor Recovery System).
G-70-196 (12/30/00)	Certification of the Saber Technologies, LLC SaberVac VR Phase II Vapor Recovery System.

**2 DE Reg. 690 (10/1/98)**

**5 DE Reg. 1484 (1/1/02)**

**6 DE Reg. 971 (10/1/01)**

**8 DE Reg. 1387 (2/1/99)**

- 37.0 Reserved**
- 38.0 Reserved**
- 39.0 Reserved**
- 40.0 Reserved**
- 41.0 Reserved**
- 42.0 Reserved**
- 43.0 Reserved**
- 44.0 Reserved**
- 45.0 Reserved**

#### **46.0 Crude Oil Lightering Operations.**

**[5 4]/11/07**

##### 46.1 Applicability.

46.1.1 The requirements in ~~[46.1 through 46.9 Section 46.0]~~ of this regulation, with the exception of 46.3.7 of this regulation, apply to the owner or operator of a lightering service that carries out crude oil lightering operations in the waters of the State. The requirement in 46.3.7 of this regulation applies to the owner of the crude oil being lightered in the waters of the State.

46.1.2 While carrying out emergency lightering operations, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation is subject only to the requirements of 46.8 of this regulation.

46.1.3 The owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation may be required to obtain, revise, or amend permits issued by the Department pursuant to Regulations 1102, 1125, and 1130 of 7 **DE Admin Code**, where applicable.

46.1.4 The requirements of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation are in addition to all other applicable State and Federal rules and regulations.

46.1.5 Nothing in ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall be construed to require any act or omission that would be in violation of any rules or regulations of the United States Coast Guard or to prevent any act that is necessary to secure the safety of personnel, property, or the environment.

##### 46.2 Definitions.

As used in ~~[46.1 through 46.9 Section 46.0]~~ of this regulation, all terms not defined herein shall have the meaning given them in Regulation 1101 or in ~~[2.2 Section 2.0]~~ of this regulation.

**"Baseline volume"** means the average annual volume, in barrels per year, of crude oil lightered in the waters of the State during calendar years 2004 and 2005. If an existing lightering service did not carry out lightering operations throughout 2004 and 2005, the baseline volume for that existing lightering service shall be the average annual volume of crude oil lightered in the waters of State during the 24 month period beginning with its first

lightering operation after December 31, 2003.

**["Controlled lightering operation" means a lightering operation in which the VOC emissions are being controlled by the use of a vapor balancing system.]**

**"Depressurization venting"** means the release of vapors to the atmosphere from the ship to be lightered, the service vessel or the vapor balancing system during controlled lightering operations.

**"Emergency lightering operations"** means the transfer of crude oil cargo to mitigate or prevent a cargo spill, to stabilize a vessel whose integrity has been compromised, or to comply with the requirements of a Coast Guard Captain of the Port Order issued under the authority of the Ports and Waterways Safety Act, 33 USC 1221, as implemented by 33 CFR 160.111.

**"Existing lightering service"** means any lightering service that carried out a lightering operation in the waters of the State with an operating permit prior to the effective date of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation.

**"Existing service vessel"** means a service vessel that has been used in a lightering operation in the waters of the State prior to the effective date of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation.

**"Lightering operation"** means the transfer of crude oil from the cargo tank of a ship to be lightered to the cargo tank of a service vessel. Transfers of crude oil from the cargo tanks of a lightering service's marine tank vessel to the cargo tanks of another marine tank vessel or reverse lightering is exempt from the requirements of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation.

**"Lightering service"** means any owner or operator that, under contract, carries out a lightering operation.

**"Marine tank vessel"** means any marine vessel, which is specifically constructed or converted to carry liquid bulk cargo in cargo tanks.

**"New lightering service"** means any lightering service that is not an existing lightering service.

**"New service vessel"** means a service vessel that is not an existing service vessel.

**"Ozone Action Day"** means a day that is predicted, based on forecasted weather conditions, to reach unhealthy ozone concentrations. Frequently called a Code Red Day, an Ozone Action Day is declared prior to 1430 hours (local time) for the following day.

**"Service vessel"** means the marine tank vessel receiving crude oil during a lightering operation.

**"Ship to be lightered"** means the marine tank vessel delivering crude oil during a lightering operation.

**"Uncontrolled lightering [operations]"** means the period or periods when VOC emissions are vented from the service vessel to the atmosphere during a lightering operation.

**["Uncontrolled lightering operation" means a lightering operation conducted without vapor balancing.]**

**"Vapor balancing"** means the collection and transfer of vapors displaced by the incoming crude oil from the cargo tank of a service vessel into a cargo tank of the ship to be lightered.

**"Vapor control system"** means an arrangement of piping and equipment used to control vapor emissions collected from a marine tank vessel. For the purposes of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation, vapor control system, also, includes vapor balancing.

**"Vapor leak"** means a gaseous leak that is detectable by sight, sound, or smell.

**"Vapor tight service vessel"** means a marine tank vessel **[that]** has successfully demonstrated vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565 within the preceding twelve months.

**"Waters of the State"** means those waters within the boundaries of the State, including the 12 mile circle described from New Castle and extended to the low water mark on the eastern side of the Delaware River and extending below the 12 mile circle with the middle of the shipping channel through the Delaware River and Bay and extending to the Atlantic Ocean and including those waters of the territorial sea which are in direct contact with the coast of Delaware, extending from the line of ordinary low water seaward for a distance of 3 geographical miles. This definition shall include any waters beyond the 3-mile mark as authorized by Federal Law.

#### 46.3 Standards.

46.3.1 When carrying out a lightering operation, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall collect and transfer the VOC emissions from the service vessel to the ship to be lightered by vapor balancing.

46.3.2 When vapor balancing, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall only use vapor tight service vessels.

46.3.~~2~~ 3 Prior to vapor balancing, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall verify that all valves in the vapor balancing system of the service vessel are correctly positioned to allow the collection and control of VOC emissions.

46.3.4 During vapor balancing, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall verify that there are no vapor leaks in the vapor balancing system of the service vessel. Whenever a vapor leak is detected:

46.3.4.1 A first attempt at repair shall be made prior to the completion of the lightering operation.

46.3.4.2 If a vapor leak in the vapor balancing system of the service vessel can not be repaired prior to the completion of the lightering operation, the leak shall be tagged and recorded.

46.3.4.3 The vapor leak shall be repaired prior to the date that the service vessel is **[next]** used in a lightering operation.

46.3.4.4 Following completion of the repair, the service vessel shall be leak tested using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.

46.3.5 During lightering operations, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall only use service vessels equipped with submerged fill pipes.

46.3.6 When vapor balancing, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall request information from the operator of the ship to be lightered on the total number of depressurization ventings by the ship to be lightered during each lightering operation. The owner or operator of the lightering service is **[neither not]** responsible for enforcing **[the requirement that the operator of the ship to be lightered provide the depressurization venting information or the information requirements of 46.3.7 of this regulation nor liable]** for any inaccuracies **[of such in the]** information **[provided by the operator of the ship to be lightered].**

46.3.7 When vapor balancing, the owner of the crude oil shall require the owner or operator of the ship to be lightered to provide the owner or operator of the lightering service the total number of depressurization ventings by the ship to be lightered at the conclusion of each lightering operation. **[The owner of the crude oil is not responsible for enforcing the requirement that the operator of the ship to be lightered provide the depressurization venting information or for any inaccuracies in the information provided by the operator of the ship to be lightered.]**

46.4 Compliance schedule.

46.4.1 The owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall comply with the following requirements.

46.4.1.1 The owner or operator of an existing lightering service shall provide the following information to the Department not later than 90 days after the effective date of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation.

46.4.1.1.1 The name or identification of existing service vessels that are expected to be used in lightering operations in the waters of the State after 2006.

46.4.1.1.2 The expected date that the vapor balancing system will be installed on each existing service vessel or the date the vapor balancing system was first used, if the existing service vessel is equipped with a vapor balancing system.

46.4.1.2 The owner or operator of a lightering service shall provide the following information to the Department upon the initial use of a new service vessel in the waters of the State.

46.4.1.2.1 The name or identification of the new service vessel.

46.4.1.2.2 The date that the new service vessel commenced lightering operations in the waters of the State.

46.4.1.2.3 A statement of whether the new service vessel is equipped with a vapor balancing system. If not equipped with a vapor balancing system, a statement on the expected date that the vapor balancing system will be installed on the new service vessel or the reason that a vapor balancing system will not be installed on that new service vessel.

46.4.1.3 Compliance with standards.

46.4.1.3.1 The owner or operator of a new lightering service shall comply with the requirements of 46.3 of this regulation upon initial lightering operation or the effective date of this regulation, whichever is later.

46.4.1.3.2 The owner or operator of an existing lightering service shall

comply with the requirements of 46.3.1 of this regulation to the greatest extent practicable and shall comply with the requirements of 46.3.2 through 46.3.6 of this regulation when vapor balancing.

46.4.1.4 Maximum allowable uncontrolled lightering volume.

46.4.1.4.1 Beginning 12 months after the initial lightering operation or the effective date of this regulation, whichever is later, a new lightering service's 12-month rolling total volume of uncontrolled lightering shall not exceed 5 percent of the new lightering service's total volume lightered for that same 12-month period.

46.4.1.4.2 Beginning May 1, 2008, the 12-month rolling total volume of uncontrolled lightering shall not exceed an existing lightering service's baseline volume multiplied by the percentages listed in Table 46-1 of this regulation.

<u>Table 46-1</u>	
<u>Beginning on</u>	<u>Maximum allowable uncontrolled lightering volume</u>
<u>May 1, 2008</u>	<u>80 %</u>
<u>May 1, 2010</u>	<u>61 %</u>
<u>May 1, 2012</u>	<u>43%</u>

46.4.1.5 The total volume of uncontrolled lightering for any given lightering operation shall be calculated using the following equation.

$$TUV = \sum_{i=1}^m (V)_i + \sum_{j=1}^n (EV)_j \quad \text{Eq. [ 46-1]}$$

Where,

TUV = the total uncontrolled volume for each given lightering operation. This total volume is used in the determination of 12-month rolling total volume of uncontrolled lightering in 46.4.1.4 of this regulation.

V = the volume of crude oil transferred to the service vessel when displaced vapors are emitted directly to the atmosphere rather than collected and controlled by vapor balancing.

EV = the equivalent volume of crude oil transferred corresponding to the collected and controlled vapors emitted from the service vessel to the atmosphere as a result of depressurization venting. The equivalent volume of crude oil shall be calculated using paragraph (d)[(2)](i)(D)(10) of 40 CFR 63.1257 or a method approved by the Department.

i = the individual uncontrolled venting when transferring crude oil.

j = the individual depressurization venting.

m = the total number of uncontrolled ventings of displaced vapors when transferring crude oil for each given lightering operation.

n = the total number of depressurization ventings for each given lightering operation.

46.4.1.6 VOC emissions reduction and audits.

Beginning in February 2010, the Department shall conduct an annual audit of lightering service records to identify the frequency and duration of VOC ventings from the ships to be lightered. If the Department finds that ventings from the ships to be lightered reduce the VOC emission reductions achieved by the lightering services to a level below the maximum allowable uncontrolled lightering volume required in Table 46-1 of this regulation, the Department shall implement solutions, which could include amending ~~46.1 through 46.9~~ **Section 46.0** of this regulation.

46.4.2 Ozone Action Day limitations.

Beginning May 1, 2007, uncontrolled lightering operations shall be curtailed as follows on



any day that the Department declares an Ozone Action Day.

46.4.2.1 Uncontrolled lightening operations shall not be carried out from 0230 hours until 1630 hours (local time) of the declared Ozone Action Day. However, if uncontrolled lightening operations have begun prior to the declaration of the Ozone Action Day, those lightening operations may continue until 0230 hours (local time) or until the service vessel is fully loaded, whichever is later.

46.4.2.2 If the Department declares consecutive Ozone Action Days, the owner or operator of a lightening service shall, to the greatest extent practicable, minimize uncontrolled lightening operations on the second and subsequent consecutively declared Ozone Action Days as follows:

46.4.2.2.1 Carrying out controlled lightening operations, if vapor balancing compatible service vessels and ships to be lightened are available.

46.4.2.2.2 Rescheduling the uncontrolled lightening operations to the periods of 1630 hours to 0230 hours (local time) of the second and subsequent consecutively declared Ozone Action Days.

46.4.3 No later than January 1, 2014 and every 5 years thereafter, the Department, owners or operators of existing lightening services subject to ~~46.1 through 46.9~~ Section 46.0] of this regulation, and owners of crude oil subject to 46.3.7 of this regulation shall determine the feasibility of achieving a 5 per cent maximum allowable uncontrolled lightening volume. If a 5 per cent maximum allowable uncontrolled lightening volume is determined to be feasible, the Department shall amend the requirements of Table 46-1 of this regulation within two years. The amended requirements shall establish a maximum allowable uncontrolled lightening volume of 5 per cent.

46.4.4 If the feasible maximum allowable uncontrolled lightening volume determined in 46.4.3 of this regulation is greater than 5 per cent, the Department shall amend the requirements of Table 46-1 of this regulation within two years. The amended requirements shall establish the feasible maximum allowable uncontrolled lightening volume determined in 46.4.3 of this regulation.

46.4.5 Any changes to the requirements of Table 46-1 of this regulation shall be made in accordance with the requirements of 7 Del.C. Ch. 60.

#### 46.5 Compliance Plan.

46.5.1 Within 120 days after the effective date of ~~46.1 through 46.9~~ Section 46.0] of this regulation or upon initial startup of each vapor balancing system, whichever is later, the owner or operator of a lightening service shall develop and implement a compliance plan that describes how initial and ongoing compliance will be demonstrated. The owner or operator of a lightening service shall make the compliance plan for each vapor balancing system available for inspection, upon request, by the Department.

#### 46.5.2 Initial Compliance.

To demonstrate initial compliance, the owner or operator of a lightening service shall provide the Department with the information specified in 46.5.2.1 and 46.5.2.2 of this regulation.

46.5.2.1 A copy of the service vessel's vapor control system Approval Letter issued by or on behalf of the United States Coast Guard in accordance with 46 CFR 39.10-13 and 46 CFR 31.01-03 or United States Coast Guard approved equivalent.

46.5.2.2 A copy of the service vessel's initial test certification demonstrating vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.

#### 46.5.3 Ongoing Compliance.

The ongoing compliance demonstration plan shall include, at a minimum, the information specified in 46.5.3.1 through 46.5.3.5 of this regulation.

46.5.3.1 The recommended instrumentation for the continuous measurement and recording of the operating pressure of the service vessel.

46.5.3.2 The recommended operating and maintenance procedures for the vapor balancing system.

46.5.3.3 The recommended startup, shutdown, and malfunction plan for the vapor balancing system, which shall include the approved calculation methodology to determine the total uncontrolled volume in 46.4.1.5 of this regulation.

46.5.3.4 The recommended operating procedures to prevent inadvertent uncontrolled VOC emissions to demonstrate compliance with 46.3.3 of this regulation.

46.5.3.5 The recommended leak testing procedures to demonstrate compliance with 46.3.4 of this regulation.

46.5.4 To the extent practical, the lightering service's standard operating and maintenance manuals and standard log sheets may be used to satisfy the requirements of the compliance plan, provided these manuals and log sheets contain all of the data necessary to meet the individual requirements of 46.5.3 of this regulation.

46.6 Equivalent methods of control.

46.6.1 Non-vapor balancing control technologies can be installed to control VOC emissions during lightering operations. New and existing lightering services may apply for the approval of an alternative control technology by submitting a complete request in accordance with the requirements of 46.6.2 and 46.6.3 of this regulation.

46.6.2 Upon receipt of a written request, the Department may approve the use of an alternative control technology to satisfy the requirements of 46.3.1 of this regulation.

46.6.3 The written request must contain a complete description of the alternative control technology, proposed compliance demonstration plan, proposed testing procedures, proposed recordkeeping requirements, and the expected startup date.

46.7 Recordkeeping.

The owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall keep the records specified in this paragraph in a readily accessible location for at least five years. These records shall be made immediately available to the Department on verbal or written request. For the purposes of 46.7 of this regulation, the terms "readily accessible location" and "immediately available" may apply to records located on a service vessel.

46.7.1 The owner or operator of an existing lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall keep calculations, including documentation of data, required to determine the baseline volume of the lightering service.

46.7.2 The owner or operator of an existing lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall keep calculations, including documentation of data, required to determine the 12-month rolling total volume of uncontrolled lightering of their lightering service in accordance with 46.4.1.4 of this regulation.

46.7.3 Beginning on the effective date of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation or upon initial lightering operation in the waters of Delaware, whichever is later, the owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall keep the following information for each lightering operation.

- 46.7.3.1 The dates and times that the lightering operation began and ended.
- 46.7.3.2 The lightering location.
- 46.7.3.3 The name or identification of the service vessel or vessels involved.
- 46.7.3.4 The name or identification of the ship to be lightered.
- 46.7.3.5 The name or identification of the owner of the crude oil to be transferred.
- 46.7.3.6 The total volume of crude oil transferred during the lightering operation.
- 46.7.3.7 The total uncontrolled volume of crude oil transferred during the lightering

operation, including documentation of the data required to calculate the total uncontrolled volume in accordance with 46.4.1.5 of this regulation.

46.7.4 Beginning on the effective date of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation or upon the initial startup of a service vessel's vapor balancing system, whichever is later, the owner or operator of a lightering service shall keep the following information.

46.7.4.1 Vapor tightness documentation for the service vessel in accordance with 46.3.2 of this regulation. The documentation shall include, at a minimum, the information specified in 46.7.4.1.1 through 46.7.4.1.6 of this regulation.

46.7.4.1.1 The service vessel name or identification.  
46.7.4.1.2 The name and address of the owner or operator of the service vessel.

46.7.4.1.3 The date and location of vapor tightness test.

46.7.4.1.4 The vapor tightness test method used.

46.7.4.1.5 The test results.

46.7.4.1.6 The tester's name and signature.

46.7.4.2 Records of the total number of depressurization ventings by the ship to be

lightered in accordance with 46.3.5 of this regulation, when vapor balancing.

46.7.4.3 Operating logs and the pressure monitoring results for the vapor balancing system of the service vessel, when vapor balancing.

46.7.4.4 Records of the occurrence and duration of a malfunction of the vapor balancing system of the service vessel, when vapor balancing.

46.7.4.5 Records of any corrective action taken, as a result of a malfunction, that was inconsistent with the startup, shutdown, and malfunction plan, when vapor balancing.

46.7.4.6 Records or logs of inspections conducted to prevent inadvertent uncontrolled VOC emissions in accordance with 46.3.2 of this regulation, when vapor balancing.

46.7.4.7 Records or logs of leak test inspections conducted in accordance with 46.3.4 of this regulation, when vapor balancing.

46.7.4.8 Maintenance logs and records of any repairs made in accordance with 46.3.4 of this regulation.

46.7.4.9 Records identifying whether vapor balancing was or was not conducted.

46.7.4.10 If vapor balancing was not conducted, records identifying the reason that vapor balancing was not attempted.

46.7.4.11 If vapor balancing was conducted and there was an uncontrolled volume of crude oil transferred during the lightering operation, records identifying the reasons the lightering operation was not fully controlled.

46.8 Emergency lightering operation exemption.

The owner or operator of a lightering service shall be exempted from the requirements of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation while carrying out emergency lightering operations, except for the requirements of 46.8.1 and 46.8.2 of this regulation.

46.8.1 The owner or operator of a lightering service that carried out emergency lightering operations shall submit a written notification to the Department within 24 hours of the completion of the emergency lightering operations. The notification shall include, at minimum, the following information.

46.8.1.1 A brief description of the emergency, which may be limited to the following:

46.8.1.1.1 The name, organization, and telephone number of the individual requesting the emergency lightering operation.

46.8.1.1.2 The name and location of ship to be lightered, and

46.8.1.1.3 The circumstances of concern.

46.8.1.2 The name, organization, and telephone number of the individual submitting the written notification.

46.8.1.3 The written notification may be submitted to the Department by fax or electronic mail.

46.8.2 The owner or operator of a lightering service that carried out emergency lightering operations shall submit a written report to the Department within 30 days following the completion of the emergency lightering operations. The report shall include, at minimum, the following information.

46.8.2.1 A brief description of the emergency, which may be limited to the following:

46.8.2.1.1 The name, organization, and telephone number of the individual requesting the emergency lightering operation.

46.8.2.1.2 The name and location of **[the]** ship to be lightered, and

46.8.2.1.3 The circumstances of concern.

46.8.2.2 The names or identifications of the service vessels involved in the emergency lightering operations.

46.8.2.3 The dates and times that the emergency lightering operations started and ended.

46.8.2.4 The total volume of crude oil transferred during the emergency lightering operations.

46.8.2.5 A certification by a responsible official as to the truth, accuracy, and completeness of the written report.

46.8.2.6 The name and signature of the responsible official certifying the written

report.

46.9 Reporting requirements.

46.9.1 The owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall submit to the Department an initial compliance certification not later than 90 days after the effective date of ~~[46.1 through 46.9 Section 46.0]~~ of this regulation or upon ~~[the]~~ initial startup of ~~[a]~~ vapor balancing system for each service vessel, whichever is later. The initial compliance notification shall provide, at a minimum, the following information.

46.9.1.1 The name, address, and telephone number of the owner or operator of the service vessel.

46.9.1.2 The name or identification of the service vessel.

46.9.1.3 A copy of the service vessel's vapor control system Approval Letter issued by or on behalf of the United States Coast Guard in accordance with 46 CFR 39.10-13 and 46 CFR 31.01-03 or United States Coast Guard approved equivalent.

46.9.1.4A copy of the service vessel's initial test certification demonstrating vapor tightness using the method in either paragraph (c)(1) or (c)(2) of 40 CFR 63.565.

46.9.2 Reports of excess emissions.

The owner or operator of a lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall, for each occurrence of an excess emission, submit a report to the Department within 30 calendar days of becoming aware of such occurrence. Excess emissions can include~~[s]~~, but are not limited to, failing to operate the vapor balancing system when practicable, inadvertently or knowingly venting VOCs from the vapor balancing system to the atmosphere during controlled lightering operations, conducting uncontrolled lightering operations on an Ozone Action Day during prohibited times, exceeding the maximum allowable uncontrolled lightering volume percentages in Table 46-1 of this regulation, etc. The report shall contain the following information, in addition to complying with any other reporting requirements required by the Department.

46.9.2.1 The name of the owner or operator of the lightering service.

46.9.2.2 The name or identification of the service vessel.

46.9.2.3 The date and time of first observation of the excess emission.

46.9.2.4 The cause and duration of the excess emission.

46.9.2.5 The corrective actions taken or the schedule to correct the conditions that caused the excess emission.

46.9.2.6 The estimated quantity of excess emission (pounds per lightering operation) and the operating data and calculations used in determining the magnitude of the excess emission.

46.9.3 The owner or operator of an existing lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall submit its baseline volume to the Department before May 1, 2007.

46.9.4 Beginning on February 1, 2008 and annually thereafter, the owner or operator of an existing lightering service subject to ~~[46.1 through 46.9 Section 46.0]~~ of this regulation shall submit a report to the Department identifying the total volume of crude oil transferred for both controlled and uncontrolled lightering operations for each month of the previous calendar year.