

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NEW JERSEY ADMINISTRATIVE CODE

TITLE 7, CHAPTER 27, SUBCHAPTER 16

**CONTROL AND PROHIBITION OF AIR POLLUTION  
BY VOLATILE ORGANIC COMPOUNDS**

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## 7:27-16.1 Definitions

The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise.

“**AASHTO**” means American Association of State Highway and Transportation Officials.

“**Aboveground storage tank**” or “**AST**” means any storage tank that is not an underground storage tank.

“**Actual emissions**” means the rate at which an air contaminant is actually emitted, either directly or indirectly, to the outdoor atmosphere, in units of mass per calendar year, seasonal period, or other time period specified in this subchapter.

“**Agitator**” means an apparatus with an external seal used to shake, stir, or mix material in an enclosed vessel.

“**Air contaminant**” means any substance, other than water or the distillates of air, present in the atmosphere as solid particles, liquid particles, vapors or gases.

“**Airless cleaning system**” means a solvent cleaning machine that operates under vacuum and seals at a differential pressure of 0.50 pounds per square inch or less, prior to the introduction of solvent or solvent vapor into the cleaning chamber, and maintains this differential pressure under vacuum during all cleaning and drying cycles.

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

“**Air-tight cleaning system**” means a solvent cleaning machine that seals at a differential pressure of 0.50 pounds per square inch or less, prior to the introduction of solvent or solvent vapor into the cleaning chamber, and maintains this differential pressure during all cleaning and drying cycles.

“**Alter**” means to effect an alteration of or control apparatus.

“**Alteration**” means one of the following changes to equipment or control apparatus, or to a source operation, for which a permit has been issued:

1. If the equipment, control apparatus, or source operation is subject to preconstruction permit requirements, a change which requires a permit revision under N.J.A.C. 7:27-8.18; or
2. If the equipment, control apparatus, or source operation is at a facility for which an operating permit has been issued, a change which requires a minor modification or a significant modification of the permit under N.J.A.C. 7:27-22.23 or 24.

“**AP-42**” means the January 1995, 5th edition of the manual entitled “Compilation of Air Pollutant Emission Factors,” which is published by the EPA, including supplements A through G and any subsequent revisions, as supplemented or amended and incorporated herein by reference. The manual may be obtained from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia, 22161, (703) 487-4650; or from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, (202) 783-3228. In addition, the manual can be accessed electronically through the EPA Technology Transfer Network CHIEF site at <http://www.epa.gov/ttn/chief/ap42/index.html>.

**"Applicable VOC"** means any VOC which has a vapor pressure or sum of partial pressures of organic substances of 0.02 pounds per square inch (1.0 millimeters of mercury) absolute or greater at standard conditions.

**"Asphalt"** means a solid, semisolid, or liquid material, produced by mixing bituminous substances together with gravel, crushed rock or similar materials, and used commonly as a coating or paving.

**"Asphalt pavement production plant"** means a batch type asphalt plant or drum mix asphalt plant operated to manufacture asphalt pavement.

**"ASTM"** means the American Society for Testing and Materials.

**"Authorized inspection agency"** means any one of the following that employs an authorized inspector:

1. An insurance company that is licensed or registered in New Jersey to write aboveground storage tank insurance;
2. An owner or operator of one or more aboveground storage tanks; or
3. An independent organization or person contracted by an aboveground storage tank owner or operator to perform an inspection.

**"Authorized inspector"** means a person authorized by the tank owner or operator to conduct floating roof inspections. This person may be an employee of the tank owner or operator or a contractor.

**"Automated parts handling system"** means, with respect to a solvent cleaning machine, a mechanical device that carries parts and/or baskets containing parts at a controlled speed from the initial loading of soiled or wet parts through the removal of the cleaned or dried parts.

**"Automobile or light duty truck surface coating operation"** means the application, flash-off, and curing of the primer, topcoat, and repair coat on the main body and other exterior sheetmetal of any passenger car or passenger car derivative capable of seating 15 or fewer passengers, or any motor vehicle rated at 8,500 pounds (3,856 kilograms) gross vehicle weight or less which is designed primarily for purposes of transportation of property, or a derivative of such vehicle including, but not limited to, pick-ups, vans, and window vans. This term includes the entire coating application system, including all spray booths, flash-off areas, and ovens in which surface coating formulations within the same spray primer, topcoat, or repair operation category are applied, dried and cured.

**"Automotive elastomeric coating"** means a coating designed for application over surfaces of flexible mobile equipment and mobile equipment components, such as elastomeric bumpers.

**"Automotive impact resistant coating"** means a coating designed to resist chipping caused by road debris.

**"Automotive jambing clear coat"** means a fast-drying, ready-to-spray clear coat applied to surfaces such as door jambs and trunk and hood edges to allow for quick closure.

**"Automotive lacquer"** means a thermoplastic coating applied directly to the bare metal surfaces of mobile equipment and mobile equipment components which dries primarily by solvent evaporation, and which is resoluble in its original solvent.

**"Automotive low-gloss coating"** means a coating which exhibits a gloss reading less than or equal to 25 on a 60° glossmeter.

**"Automotive multi-colored topcoat"** means a topcoat that exhibits more than one color, is packaged in a single container, and camouflages surface defects on areas of heavy use, including, but not limited to, cargo beds and other surfaces of trucks and other utility vehicles.

**"Automotive pretreatment"** means a primer that contains a minimum of 0.5 percent acid, by weight, that is applied directly to the bare metal surfaces of mobile equipment and mobile equipment components to provide corrosion resistance and to promote adhesion of subsequent coatings.

**"Automotive primer-sealer"** means a coating applied to mobile equipment and mobile equipment components prior to the application of a topcoat to provide corrosion resistance, to promote adhesion of subsequent coatings, to promote color uniformity, and to promote the ability of the undercoat to resist penetration by the topcoat.

**"Automotive primer-surfacer"** means a coating applied to mobile equipment and mobile equipment components prior to the application of a topcoat for the purpose of:

1. Filling surface imperfections in the substrate;
2. Providing corrosion resistance; and
3. Promoting adhesion of subsequent coatings.

**"Automotive specialty coating"** means a coating which has been determined by the Department to have only specialized, relatively low-volume uses. This term includes but is not limited to, elastomeric coatings, adhesion promoters, low gloss coatings, bright metal trim repair coatings, jaming clear coats, impact resistant coatings, rubberized asphaltic underbody coatings, uniform finish blenders, or weld-through primers applied to automotive surfaces and lacquer topcoats applied to a historic motor vehicle.

**"Automotive topcoat"** means a coating or a series of coatings applied over an automotive primer-surfacer, automotive primer-sealer or existing finish on the surfaces of mobile equipment and mobile equipment components for the purpose of protection or beautification.

**"Automotive touch up repair and refinish"** means an application of automotive topcoat to cover minor finishing imperfections which are equal to or less than one inch in diameter.

**"Background concentration"** means, with respect to the measurement of the emission of VOC from a component, the concentration of VOC in the ambient air as determined within the facility and at least one meter upwind of the component being tested.

**"Ballasting"** means the loading of water or other liquid into a marine tank vessel's cargo tank to obtain proper propeller, rudder, and hull immersion.

**"Batch"** means the material retained in a batch operation, measured at any instant prior to, during, or at the completion of the conversion.

**"Batch cycle emission rate"** means the total emissions of air contaminants per batch divided by the batch cycle time in hours.

**"Batch cycle time"** means the total elapsed time per batch in any single manufacturing process vessel, including all phases of the operation during which the vessel contains process materials, excluding time waiting for removal from the vessel.

**"Batch mix asphalt plant"** means an asphalt plant where the aggregate and asphalt cement or other binder are mixed in equipment other than a rotary dryer.

**"Batch operation"** means a type of manufacturing process in which fixed amounts of one or more

process materials are introduced into a manufacturing process vessel where they are retained for a prescribed amount of time during which they are converted. Starting materials for a batch are not introduced into the vessel until the previous batch has been removed.

**"Batch vapor cleaning machine"** means a vapor cleaning machine in which the individual parts or a set of parts that are being cleaned move through the entire cleaning cycle before new parts are introduced into the cleaning machine. The term includes, but is not limited to, solvent cleaning machines, such as ferris wheel cleaners or cross rod machines, that clean multiple loads simultaneously and that are manually loaded.

**"Blowdown event"** means the non-emergency release of natural gas from a pipeline for the purposes of inspection, maintenance, or repair and where, in the absence of control, more than 2,000 pounds of VOC could be released to the atmosphere.

**"Boiler serving an electric generating unit"** means a steam generating unit used for generating electricity including a unit serving a cogeneration facility.

**"Brake horsepower" or "bhp"** means a measure of mechanical power generated by a reciprocating engine determined by a brake attached to the shaft coupling.

**"British thermal unit" or "BTU"** means the quantity of heat required to raise the temperature of one avoirdupois pound of water one degree Fahrenheit at 39.1 degrees Fahrenheit.

**"Calendar day"** means the 24 hour period from twelve o'clock midnight to twelve o'clock midnight the following day.

**"Can coating"** means exterior and interior spray coating in two-piece can lines; interior and exterior coating in sheet coating lines for three-piece cans; side seam spray coating and interior spray coating in can fabricating lines for three-piece cans; and sealing compound application and sheet coating in end coating lines.

**"Capacity"** means the volume of a tank, as shown in the permit, or the tank manufacturer's specifications if a tank does not have a permit, or as determined by Department's measurements.

**"Capture efficiency"** means the amount of VOC entering a capture system and delivered to a control device expressed as a ratio of the total VOC generated by a source of VOC.

**"CARB"** means the California Air Resources Board.

**"Carbon adsorber"** means a bed of activated carbon into which an air/solvent, gas/vapor or liquid stream is routed and which adsorbs certain compound(s) found in the stream onto the carbon.

**"Carbon monoxide" or "CO"** means a colorless, odorless, tasteless gas at standard conditions, having a molecular composition of one carbon atom and one oxygen atom.

**"Cartridge filtration system"** means a system in which perforated canisters containing filtration paper and/or activated carbon are used in a pressurized system to remove solid particles and fugitive dyes from soil-laden solvent.

**"Catalytic oxidizer"** means a type of control apparatus which reduces the emission of air contaminants by causing the air contaminant molecules to decompose by oxidation, accomplished by preheating the gases being emitted to a predetermined temperature, which is less than required for thermal oxidation, and contacting the preheated gases with catalysts to promote decomposition.

**"Certificate"** means either an operating certificate or a temporary operating certificate.

**"CFR"** means the Code of Federal Regulations.

**"Chemical plant"** means any facility, or any part thereof, classified within the Standard Industrial Code (SIC) Major Group 28, "Chemical and Allied Products."

**"Clean produced water"** means water containing less than 35 milligrams of VOC per liter, as determined by the Diesel Range Organics option under EPA SW-846 Method 8015B or NJDEP Method OQA-QAM-025, Revision 6, and/or, if necessary, EPA SW-846 Test Method 8260, as supplemented or amended, and incorporated herein by reference. Hydrocarbons heavier than C14, as determined by Test Method ASTM E 260-85, as supplemented or amended and incorporated herein by reference, may be excluded from the total concentration. This term will be used within the context of tank degassing and cleaning operations. EPA SW-846 Method 8015B and EPA SW-846 Test Method 8260 are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161; phone number 1-800-553-6847. NJDEP Method OQA-QAM-025 Reference 6 is available on the Department's website at [www.nj.gov/dep/oqa/bboard.html](http://www.nj.gov/dep/oqa/bboard.html). Test Method ASTM E 260-85 is available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959 or from its website at [www.astm.org](http://www.astm.org).

**"Cleaning material"** means, with respect to a surface coating operation or graphic arts operation, a substance that contains VOCs and that is used for the purpose of removing dirt, grease, oil, or other contaminants from the surfaces of equipment used for the application of surface coatings.

**"Clear coating"** means a coating which lacks color and opacity or is transparent and uses the undercoat as a reflectant base or undertone color and any coating used as an interior protective lining on any cylindrical metal shipping container of greater than one gallon capacity.

**"Clear topcoat"** means the final coating, which contains binders but not opaque pigments and which is specifically formulated to form a transparent or translucent solid protective film on wood furniture.

**"CO"** means carbon monoxide.

**"Coating of flat wood paneling and printed hardwood"** means the coating of hardwood, plywood, particle board, interior wood panels, exterior siding, exterior wood panels, tile boards, and hardboard paneling. This term includes, but is not limited to, cedar, plywood or redwood stocks, composition hard boards, particle boards, plywood panels, and any other panels or siding constructed of solid wood or a wood-containing product. This term excludes the coating of particle board used in furniture manufacturing.

**"Coating of miscellaneous metal parts and products"** means the application of any coating, excluding an adhesive, to any metal part or product including, but not limited to, large and small farm machinery, small appliances, office machinery, vending machines, industrial machinery, metal-covered doors, door frames, and electrical machinery.

**"Coating of wood furniture"** means the application of any surface coating formulation to any furnishing made of wood or a composite of wood including, but not limited to, kitchen cabinets, equipment cabinets, household furniture and office furniture.

**"Coil coating"** means the coating of any flat metal sheet or strip available in rolls or coils.

**"Cold cleaning machine"** means a solvent cleaning machine, containing and/or using an unheated liquid which contains greater than five percent VOC or five percent HAP by weight, into which parts are placed for the purpose of removing dirt, grease, oil or other contaminants and coatings from the surfaces of the parts. This term includes both immersion cold cleaning machines and remote reservoir cold cleaning machines. The term does not include vapor cleaning machines and machines which do not have a solvent/air interface, such as airless and air-tight cleaning systems.



**"Coldset web lithographic printing"** means a lithographic printing process in which ink is allowed to dry naturally through evaporation and absorption, without the use of a heatset dryer.

**"Combined cycle combustion turbine"** means a combustion turbine that recovers heat from the turbine exhaust gases to heat water or generate steam.

**"Combustion source"** means a source operation or item of equipment which combusts fuel.

**"Combustion turbine"** means an internal combustion engine fueled by liquid or gaseous fuel, in which blades are driven by combustion gases to generate mechanical energy in the form of a rotating shaft that drives an electric generator or other industrial equipment.

**"Complete"** means, in reference to an application for a permit, that the application contains all of the information necessary, as determined by the Department, for commencing technical review of the application. Designating an application complete for purposes of commencing technical review does not preclude the Department from requesting or accepting any additional information.

**"Component"** means, with respect to leak detection and repair, any part of a source operation, including any equipment and control apparatus, from which emissions of air contaminants may be released into the ambient air. This term includes, but is not limited to, any agitator, valve, flange, fitting, gasket, seal, joint, pump, compressor, pressure relief device, diaphragm, manhole, hatch, sight-glass, instrument connection or other connection, meter, or associated equipment. This term does not include a designed emission point of a stack or chimney.

**"Compressor"** means a device used to compress gases or vapors by the addition of energy, and includes all associated components used to make connections or seals.

**"Conductive ink"** means an ink used in screen printing which contains material that permits electric current to flow through printed lines or patterns.

**"Conservation vent"** means any valve designed and used to reduce evaporation losses of any VOC by limiting the amount of air admitted to, or vapors released from, the vapor space of a closed storage vessel.

**"Construction ballast"** means the filling of an underground storage tank with any VOC, including gasoline, to provide stability during construction.

**"Construction engine"** means a mobile engine used for construction at a site for a limited time period. Construction engine includes a mobile electric generator that is used until regular electric power lines are available to replace the function of the electric generator at the construction site. Construction engine does not include:

1. An engine attached to a foundation;
2. An engine (including any replacement engines) at the same location for more than 12 months;
3. An engine (including any replacement engines) at a seasonal source for at least 90 days per year for at least two years; or
4. An engine that is moved from one location to another in an attempt to circumvent the residence time criteria in 2 or 3 above.

**"Control apparatus"** means any device which prevents or controls the emission of any air contaminant directly or indirectly into the outdoor atmosphere.

**"Conveyorized surface cleaner"** means a surface cleaner through which the parts to be cleaned are

moved by means of a continuous, automatic system.

**“Crude oil”** means petroleum extracted from the earth and that has not been processed in a refining operation.

**"Custom topcoating"** means, with respect to automobiles and light duty trucks, the application of surface coating formulations, except during original equipment manufacturing, to the main body or other exterior areas of any passenger car or any motor vehicle capable of seating 15 or fewer passengers or any motor vehicle rated at 8,500 pounds (3,856 kilograms) gross weight or less which is designed for purposes of transportation of property, or a derivative of such vehicle including, but not limited to, pick-ups, vans, and window vans, to achieve a finish that meets individual specifications, including, but not limited to, custom color, design, or gloss. It shall not include the use of adhesion promoters, zinc phosphate pretreatments, uniforming finishes or blenders, specialty primers for plastics, or low reflective accessory coatings.

**"Cutback asphalt"** means any paving asphalt which has been liquefied by blending with petroleum solvents, or produced directly from the distillation of petroleum having vaporization properties similar to the blended and liquefied asphalt.

**"Day"** means calendar day.

**“Deck fitting”** means a functional or operational device on a tank floating roof that substantially closes or seals a penetration in the deck of the floating roof including, but not limited to, any access hatch, fixed roof support column and well, gauge float, gauge hatch, sample port, guidepole, ladder and well, rim vent, roof drain, roof leg, and vacuum breaker, and excluding the rim seal system.

**“Degassing”** means the process of removing organic vapors from a storage tank in preparation for human entry.

**"Delivery vessel"** means any vehicle designed and constructed or converted to be capable of transporting liquid VOC cargo such as gasoline or fuel oil. This term includes, but is not limited to, tank trucks, tank trailers, railroad tank cars, and marine tank vessels.

**"Department"** means the New Jersey Department of Environmental Protection.

**"Destruction efficiency"** means the amount of VOC destroyed or removed by a control device expressed as a ratio of the total VOC entering the device.

**"Development"** means investigations in a laboratory or pilot plant directed toward the structuring or establishment of methods of manufacture or of specific designs of salable substances, devices or procedures, based upon previously discovered facts, scientific principles or substances. Development shall not include production for sale of established products through established processes; nor shall it include production in plant, works or semi-works equipment for distribution through market-testing channels.

**"Difficult to monitor component"** means any component located over 15 feet above ground when access is required from the ground, or any component located 9.6 feet away from a platform when access is required from a platform.

**"Dilution gas"** means air or gas from any source whatsoever added to the source gas emitted from a source operation.

**"Distillates of air"** means helium (He), nitrogen (N<sub>2</sub>), oxygen (O<sub>2</sub>), neon (Ne), argon (Ar), krypton (Kr), and xenon (Xe).

**“Domed roof”** means a self-supporting fixed roof attached to the top of an external floating roof tank to reduce evaporative losses.

**"DOT"** means the United States Department of Transportation.

**"Double seal floating roof"** means a floating roof with two complete and separate seal-envelope combinations, one above the other, containing an enclosed space between them. At least one of the seals must be supported by a mechanism which maintains constant seal contact with the inner surface of the vessel walls, despite surface and attitude irregularities.

**"Down time"** means, with respect to a solvent cleaning machine, the period when a solvent cleaning machine is not cleaning parts and the sump heating coils, if present, are turned off.

**"Drum mix asphalt plant"** means an asphalt plant where the asphalt cement or other binder is added to the aggregate while the aggregate is still in the rotary dryer.

**"Dwell"** means, with respect to the operation of a solvent cleaning machine, the holding of parts after cleaning within the freeboard area and above the solvent vapor zone of a solvent cleaning machine, to allow solvent to drain from the parts or the basket holding the parts back into the solvent cleaning machine.

**"Dwell time"** means, with respect to the operation of a batch vapor cleaning machine or an in-line vapor cleaning machine, the period of time which begins when a parts basket is placed above the vapor zone of the vapor cleaning machine and which ends when solvent dripping ceases.

**"Electric distribution company"** means a public utility, as the term is defined in N.J.S.A. 48:2-13, that transmits or distributes electricity to end users within this State.

**"Electric distribution system"** means that portion of an electric system, which delivers electricity from transformation points on the transmission system to points of connection at a customer's premises. An electric distribution system generally carries less than 69 kilovolts of electricity.

**"Electric generating unit"** means a combustion or steam generating source used for generating electricity that delivers all or part of its power to the electric power distribution grid for commercial sale.

**"Emergency"** means any situation that arises from sudden and reasonably unforeseeable events beyond the control of an owner or operator of a facility, such as an unforeseen system capacity shortage caused by an act of God, that requires immediate corrective action to prevent system collapse or to restore normal operations at the facility.

**"Emergency generator"** means a combustion source that:

1. Is located at a facility and produces mechanical or thermal energy, or electrical power exclusively for use at the facility;
2. Is the source of mechanical or thermal energy, or electrical power during an emergency when the primary source of energy or power is unavailable; and
3. Is operated only:
  - i. During the performance of normal testing and maintenance procedures, as recommended in writing by the manufacturer and/or as required in writing by a Federal or State law or regulation;
  - ii. When there is power outage or the primary source of mechanical or thermal energy fails because of an emergency; or

- iii. When there is a voltage reduction issued by PJM and posted on the PJM internet website ([www.pjm.com](http://www.pjm.com)) under the "emergency procedures" menu.

**"Emission statement"** means a report of the actual annual emissions of a facility submitted by the owner or operator to the Department pursuant to the requirements of N.J.A.C. 7:27-21.

**"Emulsified asphalt"** means asphalt which has been liquefied by mixing with water and an emulsifying agent.

**"EPA"** means the United States Environmental Protection Agency.

**"Equipment"** means any device capable of causing the emission of an air contaminant either directly or indirectly to the outdoor atmosphere, and any stack or chimney, conduit, flue, duct, vent or similar device connected or attached to, or serving the equipment. This term includes, but is not limited to, a device in which the preponderance of the air contaminants emitted is caused by a manufacturing process.

**"Exclusion rate"** means that rate at or below which the emission of an air contaminant into the outdoor atmosphere is not required to be controlled.

**"Exempt organic substance"** means an organic substance which is one of the chemical compounds specifically not included in the term "volatile organic compound" or "VOC" as defined in this section.

**"External floating roof"** means a movable roof in an otherwise open top storage vessel consisting of a floating deck resting on the surface of the liquid contents, a continuous seal supported against the inner surface of the tank shell, and an envelope closing the gap between the floating deck and the seal, the entire deck-seal-envelope combination free to rise and fall with the surface of the liquid during filling and emptying of the storage vessel.

**"Extreme performance coating"** means a coating formulated for and exposed to harsh environmental conditions including, but not limited to: outside weather conditions all of the time, or temperatures consistently above 95° C, or temperatures consistently below 0° C or solvents, detergents, abrasives or scouring agents; or corrosive atmospheres or fluids.

**"Fabric coating"** means the application of any surface coating formulation, except ink and plastisol, to a textile substrate in a fabric coating line.

**"Fabric printing operation"** means the decorative enhancement of knit or woven cloth including webs, sheets and towels, by applying a pattern or colored design with inks, dyes, or print pastes by techniques including, but not limited to, roller, flat screen, rotary screen, and silk screen printing.

**"Facility"** means the combination of all structures, buildings, equipment, storage tanks, source operations, and other operations located on one or more contiguous or adjacent properties owned or operated by the same person. For the purposes of this definition, each natural gas pipeline compressor or pump station and each section of natural gas pipeline between such compressor or pump station shall constitute a separate natural gas pipeline facility.

**"Facility-wide permit"** means a single permit issued by the Department to the owner or operator of a priority industrial facility incorporating the permits, certificates, registrations, or any other relevant Department approvals previously issued to the owner or operator of the priority industrial facility pursuant to the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq., and the appropriate provisions of the Pollution Prevention Plan prepared by the owner or operator of the priority industrial facility pursuant to N.J.S.A. 13:1D-41 and 42. This term shall have the same meaning as defined for the term "facility-wide permit" at N.J.A.C. 7:1K-1.5; if there is any conflict between the definition at N.J.A.C. 7:1K-1.5 and this one, the definition at N.J.A.C. 7:1K-1.5 shall control.

**"Federally enforceable"** means all limitations and conditions on operation, production, or emissions that can be enforced by EPA. The foregoing limitations and conditions that can be enforced by EPA include, but are not limited to, those established in:

1. Any standards of performance for new stationary sources (NSPS) promulgated at 40 CFR 60;
2. Any national emission standard for hazardous air pollutants (NESHAP) promulgated at 40 CFR 61;
3. Any provision of an applicable SIP;
4. Any permit issued pursuant to requirements established at 40 CFR 51, Subpart I; 40 CFR 52.21; 40 CFR 70; or 40 CFR 71; or
5. Any permit or order issued pursuant to the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq., or this chapter.

**"Fill pipe"** means a device through which liquid is transferred into a receiving vessel.

**"First attempt at repair"** means rapid action taken for the purpose of stopping or reducing a leak. First attempts at repair include, but are not limited to, the following practices where practicable: tightening of packing gland nuts, tightening of flanges, and ensuring that the seal flush is operating at design pressure and temperature.

**"Fitting"** means a component used to attach or connect pipes or piping details including, but not limited to, flanges and threaded connections.

**"Fixed roof tank"** means a tank with a roof that is permanently affixed to the shell of the tank.

**"Flare"** means a device used for the destruction of waste or by-product gases by passing them through a flame and then directly into the outdoor atmosphere. Thermal oxidizers are not flares.

**"Flexographic printing operation"** means a system of transferring images onto a substrate through first applying ink to an inking roller which in turn transfers the ink onto the raised image areas of a rubber or elastomeric plate secured to a second roller, which then transfers the ink onto the substrate.

**"Floating roof"** means an external or internal pontoon type or double-deck type roof resting on the surface of the liquid contents in a storage vessel, and equipped with a mechanism providing one or more tight seals in the space between the floating roof rim and the vessel shell throughout the entire vertical travel distance of the roof, or any other floating type mechanism approved by the Department for the purpose of preventing air contaminants from being discharged into the outdoor atmosphere.

**"Fountain solution"** means a solution used in lithographic printing operations that renders the non-image areas unreceptive to ink.

**"Fountain solution reservoir"** means the collection tank that accepts recirculated fountain solutions.

**"Freeboard height"** means, with respect to a solvent cleaning machine, the vertical distance determined as follows:

1. For a cold cleaning machine, the distance from the solvent-containing liquid to the top edge of the machine; or
2. For a vapor cleaning machine, the distance from the top of the solvent vapor layer to the top edge of the machine.

**"Freeboard ratio"** means, with respect to a solvent cleaning machine, a ratio of the machine's freeboard height to the width of its tank (that is, to the tank's narrower dimension at the tank lip).

**"Freeboard refrigeration device"** means a set of secondary coils mounted in the freeboard area of a solvent cleaning machine that carries a refrigerant or other chilled substance to provide a chilled air blanket above the solvent vapor. This term includes a solvent cleaning machine's primary condenser, if it is capable of maintaining a temperature in the center of the chilled air blanket of not more than 30 percent of the boiling point for the solvent used.

**"Fuel"** means solid, liquid or gaseous materials used to produce useful heat by burning..

**"Fugitive emissions"** means any emissions of an air contaminant released directly or indirectly into the atmosphere which do not pass through a stack or chimney.

**"Gaseous leak"** means the emission of applicable VOC directly or indirectly to the atmosphere as a gas or vapor from a hole, crevice, or other opening in a component, other than an emission that is in accordance with the component's design during normal operations.

**"Gaseous service"** means contact with applicable VOC that is in the gaseous state at operating conditions.

**"Gasoline"** means any petroleum distillate or petroleum distillate/oxygenated blend having a Reid vapor pressure of four pounds per square inch (207 millimeters of mercury) absolute or greater, and commonly or commercially known or sold as gasoline.

**"Gasoline dispensing facility"** means a facility consisting of one or more stationary gasoline storage tanks together with dispensing devices used to fill vehicle fuel tanks.

**"Gauge float"** means a device to indicate the level of the liquid within a tank. The float rests on the liquid surface inside a gauge well in the tank.

**"Gauge hatch/sample ports"** means a port that consists of a pipe sleeve equipped with a self-closing gasketed cover (to reduce evaporative losses) and allows hand-gauging or sampling of the stored liquid. The gauge hatch/sample port is usually located beneath the gauger's platform, which is mounted on top of the tank shell. A cord may be attached to the self-closing gasketed cover so that the cover can be opened from the platform.

**"Glass coating"** means the application of any surface coating formulation to a glass surface, such as those of glass lamps or bulbs.

**"Graphic arts operation"** means the application of one or more surface coating formulations across portions of a surface using one or more letterpress, lithographic, rotogravure or flexographic printers used to produce published material and packaging for commercial or industrial purposes, or any letterpress, lithographic, rotogravure or flexographic printers used to produce vinyl or urethane coated fabric or sheets, or any sheet-fed gravure, screen printing, or fabric printing operations together with any associated drying or curing areas. A single graphic arts operation ends after drying or curing and before other surface coating formulations are applied. For any web line, this term means an entire application system, including any associated drying ovens or areas between the supply roll and take-up roll or folder. This term does not include any surface coating operation.

**"Gravure printing operation (sheet-fed)"** means a system of transferring images onto a substrate through first applying ink to a cylinder into the surface of which small, shallow cells have been etched forming a pattern, then wiping the lands between the cells free of ink with a doctor blade, and finally contacting the

substrate, which is fed in single sheets, onto the cylinder so that the surface of the substrate is pressed into the cells, transferring the ink to the substrate. This term does not include proof presses which are being used to check the quality of the image formation of newly engraved or etched gravure cylinders.

**"Guidepole"** means an anti-rotation device that is fixed to the top and bottom of a tank, passing through a well in a floating roof. A guidepole may be solid or be equipped with slots or holes for gauging purposes provided the guidepole is equipped with an appropriate sealing device that prevents openings that expose the stored liquid to the atmosphere.

**"Hatch"** means a system, including a cover which may be opened or closed, that provides access to the interior of a tank or other enclosed container.

**"Hazardous air pollutant" or "HAP"** means an air contaminant listed in or pursuant to subsection (b) of section 112 of the Clean Air Act (42 U.S.C. §7412).

**"Heatset"** means a lithographic printing process in which the printing inks are set by the evaporation of the ink oils in a heatset dryer.

**"Heatset dryer"** means a hot air dryer used in heatset web lithographic printing to heat the printed substrate and to promote the evaporation of ink oils.

**"Heatset web lithographic printing"** means a lithographic printing operation in which ink is dried rapidly by forced-air heating.

**"Historic motor vehicle"** means any motor vehicle which is at least 25 years old and which is owned as a collectors item and used solely exhibition and education purposes by the owner.

**"Hot work"** means riveting, welding, flame cutting or other fire or spark-producing operation.

**"Hydrocarbons" or "HC"** means any compound or mixture of compounds whose molecules consist of atoms of hydrogen and carbon only.

**"Idle time"** means, with respect to a solvent cleaning machine, the period when a solvent cleaning machine is not actively cleaning parts, but the sump heating coil, if present, is turned on.

**"Immersion cold cleaning machine"** means a cold cleaning machine in which the part or parts to be cleaned are immersed in the solvent during the cleaning process.

**"Incinerator"** means any device, apparatus, equipment, or structure using combustion or pyrolysis to oxidize, reduce or salvage any material or substance. "Incinerator" does not include thermal or catalytic oxidizers used as control apparatus on equipment, but it does include (without limitation) any thermal destruction facility which is a resource recovery facility, as such terms are defined in N.J.A.C. 7:26-1.4.

**"Indirect emissions"** means a discharge of any air contaminant into the outdoor atmosphere through any opening that is not a stack or chimney directly connected to the equipment.

**"Industrial wastewater treatment system"** means any structure or structures by means of which industrial liquid waste or sludges are subjected to any treatment process requiring the issuance of an individual NJPDES permit regulated by the Department pursuant to the New Jersey Pollutant Discharge Elimination System Permit Program, N.J.A.C. 7:14A, under the authority of the Water Pollution Control Act N.J.S.A. 58:10A-1 et seq.

**"Industrial/commercial/institutional boiler" or "ICI boiler"** means an indirect heat exchanger that generates steam to supply heat to an industrial, commercial, or institutional operation. This term does not

include boilers that serve electric generating units.

**"Ink transfer"** means a decal, printed using screen printing onto a special release carrier, that will be transferred from the carrier to a substrate. Final transfer of the decal to the substrate may or may not occur at the screen printing facility.

**"In-line vapor cleaning machine"** means a vapor cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a supply of parts to be cleaned and which is fully enclosed except for the conveyor inlet and exit portals.

**"In-service roof landing"** means a roof landing in which the tank is not taken out of service.

**"Internal floating roof"** means a floating roof located inside a vessel with a fixed roof.

**"Internal combustion engine"** means either a reciprocating engine or a combustion turbine in which power, produced by heat and/or pressure from combustion is converted to mechanical work.

**"KW" or "kW"** means kilowatt.

**"Laboratory operations"** means any action, process, or treatment utilizing chemical, physical, or biological factors to conduct experimental research, tests, or demonstrations.

**"Ladder and well"** means a ladder that passes through a well, and is used to access the top of the internal floating roof.

**"Large appliance coating"** means the application of any coating to the component parts of large appliances including, but not limited to, doors, cases, lids, panels, and interior supports of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dish washers, trash compactors, air conditioners, and other associated products.

**"Leak"** means a gaseous leak or a liquid leak of applicable VOC.

**"Leak-free"** means a condition that exists when the reading on a portable hydrocarbon analyzer is less than 500 ppm, expressed as methane, above background, measured using EPA Method 21, as identified in 40 CFR Part 60, Appendix A, Determination of Volatile Organic Compounds Leaks, incorporated herein by reference.

**"Leather coating"** means the application of any surface coating formulation to a leather substrate in a leather coating line.

**"Letterpress printing" or "letterpress printing operation"** means printing using cast metal type or plates on which the image or printing areas are raised above the non-printing areas, the ink rollers touch only the top surface of the raised areas, and the surrounding (non-printing) areas are lower and do not receive ink. A letterpress printing operation includes, but is not limited to, a heatset letterpress printing operation.

**"Light liquid"** means a fluid with vapor pressure greater than 0.044 pounds per square inch absolute (2.27 millimeters of mercury) at 68° F.

**"Light liquid service"** means contact with a fluid that is 10 percent or greater by weight light liquid.

**"Liquid leak"** means the release of liquid applicable VOC from a hole, crevice, or other opening in a component subject to N.J.A.C. 7:27-16, other than a release of liquid VOC in accordance with the component's design during normal operations. The presence of a drop, drip, accumulation, pool, or other visible evidence of a liquid, applicable VOC demonstrates that a liquid leak has occurred.



**“Liquid mounted primary seal”** means a primary seal that is mounted in full contact with the liquid in the annular space between the tank shell and the floating roof.

**"Liquid particles"** means particles which have volume but are not of rigid shape.

**"Liquid service"** means contact with applicable VOC that is in the liquid state at operating conditions.

**“Lithographic printing” or “lithographic printing operation”** means printing by a planographic method in which the image and nonimage areas are chemically differentiated. The image area is oil receptive which allows the pigments in the inks to absorb on the substrate. The non-image area is water receptive, which prevents the pigments in the ink from absorbing on the substrate. This method differs from other printing methods, in which the image is a raised or recessed surface. A lithographic printing operation includes, but is not limited to, a heatset web lithographic printing operation, a coldset web offset lithographic printing operation, and a sheet-fed offset lithographic printing operation.

**"Local exhaust ventilation"** means a system for capturing air contaminants within 36 inches (91.4 centimeters) of the points at which they emerge from a source operation.

**"Magnet wire coating"** means the application of electrically insulating varnish or enamel to aluminum or copper wire.

**"Major VOC facility"** means any facility which has the potential to emit 25 or more tons of VOC per year.

**"Manufacturing process"** means any action, operation or treatment embracing chemical, industrial, manufacturing, or processing factors, methods or forms including, but not limited to, furnaces, kettles, ovens, converters, cupolas, kilns, crucibles, stills, dryers, roasters, crushers, grinders, mixers, reactors, regenerators, separators, filters, reboilers, columns, classifiers, screens, quenchers, cookers, digesters, towers, washers, scrubbers, mills, condensers, or absorbers.

**"Manufacturing process vessel"** means any container where in a manufacturing process, or any part thereof, takes place.

**"Marine tank vessel"** means any tugboat, tanker, freighter, passenger ship, barge, boat, ship, or watercraft, which is specifically constructed or converted to be capable of carrying liquid cargo in tanks.

**"Marine terminal"** means any facility, or part thereof, at which liquid cargo is loaded into or unloaded out of marine tank vessels.

**"Maximum gross heat input rate"** means the maximum amount of fuel a combustion source is able to combust in a given period as stated by the manufacturer of the combustion source. This term is expressed in BTUs per hour, based on the highest BTU value of the fuels combusted.

**“Maximum operating level”** means the highest achievable level of fluid within a tank, as determined by the structural design of the tank. In the absence of tank specific design information, the maximum operating level is equal to tank capacity.

**“Mechanical shoe seal”** means a metallic sheet (the shoe) that is held vertically against the vertical tank wall. The shoe is connected by braces to the floating roof and is held tightly against the wall by springs or weighted levers. A flexible coated fabric (envelope) is suspended from the shoe seal to the floating roof to form a vapor barrier over the annular space between the roof and the primary seal.

**"Metal furniture coating"** means the coating in a metal furniture coating line of any metal part which

will be assembled with other metal, wood, fabric, plastic, or glass parts to form a piece of furniture.

**“Mixing vessel”** means, with respect to a surface coating operation or graphic arts operation, any equipment used to develop coatings containing VOCs that involves blending two or more input streams.

**“Mobile equipment”** means equipment which may be driven or is capable of being driven or pulled on a roadway including, but not limited to, automobiles, trucks, including truck cabs, truck bodies and truck trailers, buses, motorcycles, camper shells, mobile cranes, bulldozers, street cleaning machines, golf carts, ground support vehicles used in support of aircraft activities at airports, and farm equipment.

**“Modify” or “modification”** means any physical change in, or change in the method of operation of, existing equipment or control apparatus that increases the amount of actual emissions of any air contaminant emitted by that equipment or control apparatus or that results in the emission of any air contaminant not previously emitted. This term shall not include normal repair and maintenance. Also, for the purposes of this definition, “air contaminant” shall have the meaning of “category of air contaminants” in a case where the regulatory limit is placed on a grouping of contaminants (such as VOCs) rather than on a single species of contaminant.

**“MW”** means megawatt.

**“Natural gas/gasoline processing plants”** means facilities engaged in the separation of natural gas liquids from field gas and/or fractionation of the liquids into natural gas products such as ethane, propane, butane, and natural gasoline. Excluded from the definition are compressor stations, dehydration units, sweetening units, field treatment, underground storage, liquefied natural gas units, and field gas gathering systems unless these facilities are located at a gas plant.

**“New Jersey's coastal waters”** means the Atlantic Ocean area and all areas under tidal influence within three nautical miles (5,566 meters) of the mean high water line as measured from the New Jersey coast, except that, if at any point along the line of measurement, within or beyond three nautical miles (5,566 meters), there is a meeting of waters under the exclusive jurisdiction of any other State or the United States of America, New Jersey's jurisdiction shall end at that point. Any point of measurement shall be taken from a point of New Jersey land, permanent or nonpermanent, and extended azimuthally to a distance of three nautical miles (5,566 meters) or to the point where another State or the United States of America has jurisdiction.

**“Non-contact floating roof”** means a roof that is located inside an internal floating roof tank that is supported on pontoons several inches above the liquid surface.

**“Non-heatset lithographic printing”** means a lithographic printing process in which the printing inks are set by absorption and/or oxidation of the ink oils, not by evaporation of the ink oils in a heatset dryer. For the purposes of this subchapter, use of an infrared heater or printing conducted using ultraviolet-cured or electron beam-cured inks is considered non-heatset lithographic printing.

**“Offset lithography”** means a planographic method of printing in which the image and nonimage areas are on the same plane and where the ink is transferred from an image plate on one cylinder to an image blanket on a different cylinder. The ink is finally transferred from the image blanket to the surface to be printed.

**“Oily wastewater”** means wastewater generated during the refinery process and which contains oil, emulsified oil, or other hydrocarbons. Oily wastewater originates from a variety of refinery processes including cooling water, condensed stripping steam, tank draw-off, and contact process water.

**“Opaque stain”** means all stains that contain pigments but are not classified as semitransparent stains, and includes stains, glazes, and other opaque material applied to wood surfaces.

**“Open burning”** means any fire from which the products of combustion are emitted directly into the open air, and are not by design directed through a stack or chimney.

**"Open top tank"** means any vessel in which a manufacturing process, or any part thereof, takes place during which there is an opening to the atmosphere greater than 25 percent of the surface area of any liquid substance contained therein.

**"Operating certificate"** means a "Certificate to Operate Control Apparatus or Equipment" issued by the Department pursuant to the Air Pollution Control Act of 1954, specifically N.J.S.A. 26:2C-9.2, which is valid for a period of five years from the date of issuance, unless sooner revoked by the Department.

**"Operating permit"** means the permit described in Title V of the Federal Clean air Act, 42 U.S.C. §§7661 et seq., and in N.J.A.C. 7:27-22. This term shall include a general operating permit which is applicable facility wide, but does not include a general operating permit which applies only to a part of a facility. Where a general operating permit applies only to a part of a facility, the general operating permit shall be incorporated into the operating permit. This term also includes an operating permit issued for a temporary facility; for a facility subject to a MACT or GACT standard pursuant to N.J.A.C. 7:27-22.26; or for a component of a facility pursuant to N.J.A.C. 7:27-22.5(j).

**"Order"** means any and all orders issued by the Department including, but not limited to, administrative order and administrative consent orders.

**"Organic liquid"** means any liquid that contains volatile organic compounds (VOCs) including, but not limited to, crude oils and petroleum distillates.

**"Other wastewater treatment system"** means any structure or structures by means of which liquid waste or sludges (other than industrial liquid waste or sludges) are subjected to any treatment process requiring the issuance of an individual NJPDES permit pursuant to the New Jersey Pollutant Discharge Elimination System Permit Program, N.J.A.C. 7:14A, under the authority of the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.

**"Out-of-service"** means any container, pipe, or equipment from which all liquid and sludge has been removed, all connecting lines and piping have been disconnected and blanked off, all valves (except for ventilation valves) have been closed and locked, and on which conspicuous signs have been posted that state that it is out of service and note the date of removal from service.

**"Paper coating"** means:

1. The application of any coating, excluding plastisol, uniformly distributed across the web, which is put on paper, or on pressure-sensitive tapes regardless of the substrate, including paper, fabric, or plastic film;
2. Related web coating processes on plastic film including, but not limited to, typewriter ribbons, photographic film, and magnetic tape; or
3. Decorative coating on metal foil including, but not limited to, gift wrap and packaging.

This term does not include any graphic arts operation.

**"Partial pressure"** means the pressure exerted by a specified component in a mixture of gases.

**"Particles"** means any material, except uncombined water, which exists as liquid particles or solid particles at standard conditions.

**"Penetrating prime coat"** means a low-viscosity liquid asphalt applied to a surface in order to prepare it for paving with an asphalt concrete.

**"Permit"** means preconstruction permit, operating permit, or facility-wide permit.

**"Person"** means any individual or entity and shall include, without limitation, corporations, companies, associations, societies, firms, partnerships, and joint stock companies, and shall also include, without limitation, all political subdivisions of any State or any agencies or instrumentalities thereof.

**"Petroleum distillate"** means any mixture of VOC produced by condensing vapors of petroleum during distillation, including, but not limited to, naphthas, aviation gasoline, motor gasoline, kerosene, diesel oil, domestic fuel oil, and petroleum solvents.

**"Petroleum solvent dry cleaning"** means a process in which textile and fabric articles are washed in a solution of organic material, and then dried by exposure to a heated air stream. The organic material is produced by petroleum distillation and is comprised of a hydrocarbon range of 8 to 12 carbon atoms per organic molecule.

**"Pigmented coat"** means opaque coatings that contain binders and colored pigments and are formulated to conceal the wood surface either as an undercoat or topcoat.

**"Pipe coating"** means the application of any coating to a pipe comprised of any material except plastic.

**"PJM"** means PJM Interconnection, LLC, or any successor to PJM as the Regional Transmission Organization, approved by the Federal Energy Regulatory Commission (FERC), serving a region that includes New Jersey as well as all or parts of other states.

**"Planography"** means any method of printing from a flat surface.

**"Plastic part"** means a piece made from a substance that has been formed from a natural or synthetic resin through the application of pressure or heat or both.

**"Plastisol"** means a surface coating formulation that is a dispersion of finely divided polymeric resin in a high boiling solvent or softening agent that is added to increase flexibility or toughness and includes plastisols to which a volatile solvent has been added.

**"Platform"** means any elevated horizontal surface, either temporary or permanent, used for the purpose of gaining access to a component.

**"Pole float"** means a float located inside a guidepole that floats on the surface of the stored liquid. The rim of the float has a wiper or seal that extends to the inner surface of the pole.

**"Pole sleeve"** means a device that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.

**"Pole wiper"** means a seal that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.

**"Pollution prevention"** shall have the same meaning as defined for this term at N.J.A.C. 7:1K-1.5.

**"Positive pressure ventilation"** means any ventilation system in which pressurized air from a compressed air manifold, fan, or similar device is blown into a work area.

**"Potential to emit"** means the maximum capacity of a source operation or a facility to emit an air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of a source operation or a facility to emit an air contaminant, including control apparatus and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is Federally enforceable. If there is no Federally enforceable limitation on the hours of operation of a source operation, then any determination of the maximum design capacity shall be based on a

presumption of operation at 8760 hours per year. This term includes the fugitive emissions emitted by the source operation or facility as calculated in a manner consistent with the provisions of N.J.A.C. 7:27-21 and current guidance issued by the Department pursuant thereto.

**"Power outage"** means an interruption in the provision of electricity to customers because normally available sources of electrical energy are unavailable, provided the unavailability is due to circumstances beyond the control of the customer.

**"Ppm"** means parts per million.

**"Ppmvd"** means parts per million by volume, dry basis. This is the number of parts in a mixture, by volume, which are of the specified substance, not including the number of parts contributed by water.

**"Preconstruction permit"** means a legally valid permit, authorizing construction, installation, reconstruction, or modification of a significant source, issued by the Department under N.J.A.C. 7:27-8 pursuant to the New Jersey Air Pollution Control Act and in particular N.J.S.A. 26:2C.

**"Pressure relief device"** means a type of component which is installed for safety to relieve elevated pressure within equipment, or within a conduit or duct serving equipment. Such a component is designed to release material contained within the system when the pressure within the system exceeds a set level.

**"Pressure relief valve"** means a type of pressure relief device which consists of a valve that automatically opens when the pressure within the system exceeds a set level and closes when the pressure drops below that level.

**"Pressure vessel"** means a tank, reservoir, or container that is capable of maintaining working pressures sufficient to prevent organic liquid loss or VOC loss to the atmosphere at all times.

**"Primary condenser"** means, with respect to a vapor cleaning machine, a series of circumferential cooling coils located in the machine through which a chilled substance is circulated or recirculated to provide continuous condensation of rising solvent vapors, to create a concentrated vapor zone.

**"Primary seal"** means a seal mounted below a secondary seal of a rim seal system that consists of two seals. A primary seal, which is in contact with the floating roof tank shell, can be either mechanical shoe, resilient filled, or wiper type.

**"Process emission rate"** means the mass rate of air contaminants emitted from the final source operation of a process, exclusive of any type of control apparatus or product recovery device.

**"Process unit shutdown"** means a regularly scheduled work practice or operational procedure that stops production from a process unit or part of a process unit for 24 hours or such other longer time as the owner or operator of the unit establishes to be necessary for the removal of the process material so that repairs to the unit can be carried out in a safe manner. The use of spare equipment without stopping production is not a process unit shutdown.

**"Psia"** means pounds per square inch absolute.

**"Pump"** means a device used to transport fluids by the addition of energy, and includes all associate components used to make connections or seals.

**"Rated power output"** means the maximum electrical or equivalent mechanical power output stated on the nameplate affixed to an engine or the International Standard Organization (ISO) rated electrical or equivalent mechanical power stated on the nameplate affixed to a turbine by the manufacturer.

**"Receiving vessel"** means any vessel into which an applicable VOC is introduced including, but not

limited to, storage tanks, delivery vessels, and manufacturing process vessels.

**"Reciprocating engine"** means an internal combustion engine in which a rotating crankshaft is driven by reciprocating motion of piston(s).

**"Reconstruction"** means the replacement of part(s) of equipment included in a process unit, or the replacement of part(s) of control apparatus, if the fixed capital cost of replacing the part(s) exceeds both of the following amounts:

1. Fifty percent of the fixed capital cost that would be required to construct a comparable new process unit; or, if it is part(s) of control apparatus that is being replaced, 50 percent of the fixed capital cost that would be required to construct comparable new control apparatus; and
2. \$80,000, in 1995 dollars, adjusted by the Consumer Price Index (CPI).

**"Reduce room draft"** means, with respect to the operation of a solvent cleaning machine, to decrease the flow or movement of air across the top of the freeboard area of the solvent cleaning machine to less than 50 feet per minute (15.2 meters per minute) by methods including, but not limited to, redirecting fans and/or air vents, moving the machine to a corner or other area in the room where there is less flow or movement of air, or constructing a partial or complete enclosure around the machine.

**"Refinishing"** means, with respect to automobiles and light duty trucks, the recoating of the main body or other exterior areas of any passenger car or passenger car derivative capable of seating 15 or fewer passengers or any motor vehicle rated at 8,500 pounds (3,856 kilograms) gross weight or less which is designed primarily for purposes of transportation, of property, or a derivative of such vehicle including, but not limited to, pick-ups, vans, and window vans. It shall not include the use of adhesive promoters, zinc phosphate pretreatments, uniforming finishes or blenders, specialty primers for plastics, or low reflective accessory coatings.

**"Regenerative cycle combustion turbine"** means a combustion turbine that recovers heat from its exhaust gases and uses that heat to preheat the inlet combustion air which is fed into the combustion turbine.

**"Regulated leak"** means any gaseous leak of applicable VOC at a concentration or level above any applicable limit established in Tables 18A and 18B and any liquid leak of an applicable VOC.

**"Reid vapor pressure"** or "RVP" means the absolute vapor pressure of a petroleum product in pounds per square inch (or kilopascals) at 100 degrees Fahrenheit (°F) (37.8 degrees Celsius (°C)) as measured by "Method 3- Evacuated Chamber Method" promulgated at 40 CFR 80, Appendix E; or any other equivalent test method approved in advance in writing by the Department and the EPA.

**"Remote reservoir cold cleaning machine"** means a cold cleaning machine in which liquid solvent is pumped into a sink-like work area where the cleaning of parts occurs, and from which the solvent is immediately drained back into an enclosed container or reservoir, so that no solvent is allowed to pool in the work area.

**"Repair"** means, with respect to a VOC leak, a corrective action taken to eliminate the leak or reduce the leak to below regulated levels.

**"Research"** means investigations directed toward the discovery of facts, scientific principles, reactions, or substances.

**"Resilient filled primary seal"** means an envelope filled with resilient foam (non-metallic polyurethane) mounted at the rim of the floating roof that makes contact with the shell. A resilient filled nonmetallic primary seal can be liquid-mounted or vapor-mounted.

**“Resilient-toroid-type”** seal means a core of open-cell foam encapsulated in a coated fabric that is attached to a mounting on the deck perimeter, and is continuous around the floating roof circumference.

**“Rim mounted secondary seal”** means a secondary seal mounted on the rim of the floating roof of a storage tank. Rim mounted secondary seals are effective at reducing losses from the primary seal fabric.

**“Rim seal system”** means a closure device between the shell of the storage tank and the floating roof edge. A rim seal system may consist of two seals, one above the other. The lower seal is referred to as the primary seal and the upper seal is referred to as the secondary seal.

**“Rim vent”** means a vent used on tanks equipped with a seal design, such as a mechanical shoe seal, that creates a vapor pocket in the seal and rim area. The vent is used to release excess pressure or vacuum that is present in the vapor space bounded by the primary-seal shoe, the floating roof rim, the primary seal fabric, and the liquid level. A rim vent usually consists of a weighted pallet that rests on a gasketed cover.

**“Roof drain”** means a drain that permits the removal of rainwater from the surface of external floating roofs. A roof drain may be a closed drainage system that carries rainwater from the surface of the floating roof to the outside of the tank, or an open drainage system consisting of an open pipe that extends a short distance below the bottom of the deck allowing rainwater to drain from the surface of the floating roof into the organic liquid contents of the tank.

**“Roof landing”** means an event where the liquid level in a floating roof tank is lowered to the point where the floating roof is resting on its legs or is supported from above by cables or hangers, and is no longer floating on the surface of the stored liquid.

**“Roof leg”** means an adjustable or fixed leg that is attached to the floating roof deck to support or hold the floating roof deck at a predetermined distance off the tank bottom to prevent damage to the fittings located underneath the deck and to allow for tank cleaning or repair. For adjustable legs, the load-carrying element passes through a well or sleeve in the deck.

**“Roof opening”** means any opening through a floating roof of a storage tank for any deck fitting.

**“Rotogravure printing operation (web-fed)”** means a system of transferring images onto a substrate through first applying ink to a cylinder into the surface of which small, shallow cells have been etched forming an image or a pattern, then wiping the lands between the cells free of ink with a doctor blade, and finally contacting the substrate, which is fed from a continuous roll, over the cylinder so that the surface of the substrate is pressed into the cells, transferring the ink to the substrate. This term does not include proof presses which are being used to check the quality of the image formation of newly engraved or etched gravure cylinders.

**“Rupture disc”** means a type of pressure relief device which is designed to fracture, rupture, or burst under pressure when the pressure within the system exceeds a set level. Such a device is commonly a diaphragm held between flanges, which under conditions of normal operation remains intact and prevents gases from being released from the system.

**“Screen printing operation”** means a system of transferring images onto a substance in which the printing ink passes through a fabric to which a stencil has been applied. The openings in the stencil determine the form and dimensions of the imprint.

**“Seal-envelope combination”** means a barrier to the passage of VOC vapors between a floating roof and the inner surface of a storage vessel wall, consisting of a seal which maintains constant contact with the

wall as the floating roof rises and descends with the level of the stored VOC, and a membrane, diaphragm, fabric, or blanket, known as an envelope, which spans the gap between the floating roof and the seal and which is vapor-tight.

**"Sealer"** means coatings containing binders that seal a wood surface prior to application of subsequent coatings.

**"Secondary seal"** means a seal mounted above the primary seal of a rim seal system that consists of two seals. Secondary seals can be shoe mounted or rim-mounted.

**"Semitransparent stain"** means stains that contain dyes and/or semitransparent pigments and are formulated to enhance wood grain and to change the color of the surface, but not to conceal the surface; including sap stain, toner, nongrain raising stains, pad stain, spatter stain, and other semitransparent stains.

**"Sheet-fed offset lithographic printing"** means a non-heatset lithographic printing process in which individual pages of paper or other substrate are fed into the machine.

**"Shoe mounted secondary seal"** means a secondary seal mounted on the primary mechanical shoe. Shoe mounted secondary seals are effective at reducing vapor losses from the gaps between the shoe and the tank shell.

**"Simple cycle combustion turbine"** means a combustion turbine that does not recover heat from its exhaust gases.

**"Slop Oil"** means the floating oil and solids that accumulate on the surface of an oil-water separator.

**"Small appliances"** means devices used primarily in households and offices including, but not limited to, fans, mixers, blenders, dehumidifiers, toasters, toaster-ovens, slow pot cookers, food processors, portable heaters, lamps, typewriters, staplers, and paper punches.

**"Small producer"** means an operator, in the business of crude oil production, who:

1. Produces an average of less than 6,000 barrels per day of crude oil from all operations within the county; and
2. Does not engage in refining, transportation, or marketing of refined petroleum products.

**"Solid particles"** means particles of rigid shape and definite volume.

**"Solvent/air interface"** means, with respect to a solvent cleaning machine, the interface between the concentrated solvent vapor layer and the air. For a vapor cleaning machine, this contact point is defined as the plane at the mid-line height of the primary condenser coils. For a cold cleaning machine, this contact point is defined as the plane of contact between the liquid solvent and the air.

**"Solvent cleaning machine"** means a device or piece of equipment that uses solvent, in a liquid or vapor state, to remove contaminants, such as dirt, grease, oil, and coatings, from the surfaces of materials. Types of solvent cleaning machines include, but are not limited to, vapor cleaning machines, cold cleaning machines, and airless and air-tight cleaning systems.

**"Solvent recovery dryer"** means a class of dry cleaning dryers that employs a condenser to liquefy and recover solvent vapors evaporated in a closed-loop, recirculating stream of heated air.

**"Source gas"** means air or gases passed through, or generated by, a source operation and discharged from the source operation.



**"Source operation"** means any process or any identifiable part thereof that emits or can reasonably be anticipated to emit any air contaminant either directly or indirectly into the outdoor atmosphere. A source operation may include one or more pieces of equipment or control apparatus.

**"Special purpose screen printing inks and coatings"** means inks and coatings used in screen printing which are used to print ink transfers, or are designed to resist or withstand any of the following: more than two years of outdoor exposure, exposure to chemicals, solvents, acids, detergents, oil products or cosmetics, temperatures in excess of 170 degrees Fahrenheit, vacuum forming, embossing or molding.

**"Stack or chimney"** means a flue, conduit or opening designed, constructed or utilized for the purpose of emitting any air contaminant into the outdoor atmosphere.

**"Standard conditions"** means 70 degrees Fahrenheit (°F) (21.1 degrees Celsius (°C)) and one atmosphere pressure (14.7 pounds per square inch absolute or 760.0 millimeters of mercury).

**"Standard Industrial Classification Code"** or **"SIC Code"** means the system devised by the United States Office of Management and Budget to classify establishments according to the type of economic activity in which they are engaged.

**"State implementation plan"** or **"SIP"** means a plan for the attainment of any NAAQS, prepared by a state and approved by the EPA pursuant to Section 110 of the Clean Air Act (42 USC 1857 et seq.).

**"Stationary combustion turbine"** means any simple cycle combustion turbine, regenerative cycle combustion turbine, or combustion turbine portion of a combined cycle steam/electric generating system that:

1. Is not self-propelled, but may be mounted on a vehicle for portability; or
2. Is self-propelled on tracks at a facility, but does not in the course of its normal operation leave the facility.

**"Stationary reciprocating engine"** means an internal combustion engine that is a reciprocating engine that remains for more than 30 days at a single site (for example, any building, structure, facility, or installation), and:

1. Is not self-propelled, but may be mounted on a vehicle for portability; or
2. Is self-propelled on tracks at a facility, but does not in the course of its normal operation leave the facility. This term does not include mobile electric generators being used by the military, locomotive engines or construction engines.

**"Stationary internal combustion engine"** means any internal combustion engine that is not self-propelled. This term includes internal combustion engines which are mounted on vehicles for portability.

**"Steam generating unit"** means any furnace, boiler, or other device which combusts fuel for the purpose of producing steam.

**"Storage tank"** means any tank, reservoir, or vessel which is a container for liquids or gases, wherein:

1. No manufacturing process, or part thereof, other than filling or emptying takes place; and
2. The only treatment carried out is that necessary to prevent change from occurring in the physical condition or chemical properties of the liquids or gases deposited into the container. Such treatment may include recirculating, agitating, maintaining the temperature of the stored liquids

or gases, or replacing air in the vapor space above the stored liquids or gases with an inert gas in order to inhibit the occurrence of chemical reaction.

**"Submerged fill pipe"** means a fill pipe whose point of discharge into the receiving vessel is entirely submerged when the liquid level is no more than 6 inches (15.2 centimeters) above the vessel bottom or, in the case of a top or side-entering fill pipe, when the liquid level is no more than three times the inside radius of the fill pipe plus 5 inches (12.7 centimeters), but no more than 42 inches (106.7 centimeters), above the vessel bottom.

**"Superheated vapor system"** means, with respect to a vapor cleaning machine, a system that heats the solvent vapor to a temperature that is at least ten degrees Fahrenheit above the solvent's boiling point. In such a system parts are held in the superheated vapor and then exit the machine.

**"Surface cleaner"** means a device to remove unwanted foreign matter from the surfaces of materials by using VOC solvents in liquid or vapor state.

**"Surface coating formulation"** means the material used to form a protective, functional, or decorative film including, but not limited to, paint, varnish, ink, or adhesive, applied to or impregnated into a substrate. This term includes such material whether used in a surface coating or graphic arts operation.

**"Surface coating formulation as applied"** or **"coating as applied"** means the volume, in gallons or liters, of any surface coating formulation used in a surface coating operation, including any diluents or thinners added.

**"Surface coating operation"** means the application of one or more surface coating formulations across an entire surface, using one or more coating applicators, together with any associated drying or curing areas. A single surface coating operation ends after drying or curing and before other surface coating formulations are applied. For any web coating line, this term means an entire coating application system, including any associated drying ovens or areas between the supply roll and take-up roll, that is used to apply surface coating formulations onto a continuous strip or web. This term does not include any graphic arts operation.

**"Synthetic organic chemical or polymer"** means one or more of the substances listed in Appendix I.

**"Tablet coating"** means the application of any surface coating formulation to a formed pharmaceutical product.

**"Tank"** means any container whose walls are constructed of material which is rigid and self-supporting.

**"Tank battery"** means, for crude oil production facilities, an aggregation of two or more tanks where the tanks are located so that no one tank is more than 150 feet from another tank as measured from the closest tank edges, and the tanks are located in the same crude oil production field. "Tank battery" means, for non-crude oil production facilities, an aggregation of two or more tanks located within the same facility, regardless of the distance of the tanks from each other.

**"Temporary operating certificate"** means an operating certificate with a term shorter than five years, issued pursuant to N.J.A.C. 7:27-8.7(d).

**"Thermal oxidizer"** means a type of control apparatus which reduces the emission of air contaminants by subjecting the gases being emitted to elevated temperatures which cause the air contaminant molecules to decompose within an enclosed space. For the purposes of this subchapter, this term includes catalytic and non-catalytic thermal oxidizers.

**"Tileboard"** means an interior wall paneling product made of hardwood that is designed for use in high moisture areas, such as kitchens and bathrooms.

**"Toxic substance"** or **"TXS"** means a substance listed in Table 1 of N.J.A.C 7:27-17.3.

**"Transfer efficiency"** means the percent by weight, on a dry basis, of the total coating solids applied to an object which adhere to the object.

**"Transfer operation"** means the moving of any substance from any storage tank, manufacturing process vessel, or delivery vessel into any receiving vessel.

**"True vapor pressure" or "TVP"** means the equilibrium partial vapor pressure exerted by an organic liquid at actual storage temperature.

**"Underground storage tank"** means any tank defined as such in N.J.A.C. 7:14B.

**"Unihose"** means, with respect to a gasoline dispenser at a gasoline dispensing facility, a dispenser which has only one hose and one nozzle per dispenser side which is used for dispensing all grades of gasoline.

**"Urethane coating"** means the application of any surface coating formulation, except plastisol, to urethane coated fabric or urethane sheets that are more than 0.002 inches (50 micrometers) thick, except resilient floor covering and flexible packaging.

**"Utility boiler"** has the meaning defined in N.J.A.C. 7:27-19.

**"Vacuum breaker"** means a device used to equalize the pressure of the vapor space across the floating roof deck as the deck is either being landed on or floated off its legs.

**"Vacuum service"** means equipment operating at an internal pressure which is at least 0.725 pounds per square inch (37.5 millimeters of mercury) below ambient pressure.

**"Valve"** means a device that regulates or isolates the fluid flow in a pipe, tube, or conduit by means of an external actuator.

**"Vapor"** means the gaseous form of substances which, under standard conditions, are in the solid or liquid state and which can be changed to these states by either increasing the pressure or decreasing the temperature.

**"Vapor balance system"** means a system for controlling vapor losses during the transfer of a VOC liquid from one vessel to another vessel or tank by means of the simultaneous counter-transfer of displaced vapors from the receiving vessel to the vessel supplying the liquid.

**"Vapor cleaning machine"** means a solvent cleaning machine that uses either solvent vapor generated by boiling liquid solvent or heated liquid solvent as part of the cleaning or drying cycle. This term includes both batch vapor cleaning machines and in-line vapor cleaning machines, but does not include cold cleaning machines and machines which do not have a solvent/air interface, such as airless and air-tight cleaning systems.

**"Vapor control system"** means a system for preventing the emission of organic vapors into the outdoor atmosphere.

**"Vapor-mounted primary seal"** means a seal-envelope combination which is mounted so that underneath the seal there is an annular vapor space which is bounded by the bottom of the seal, the vessel wall, the liquid surface, and the floating roof.

**"Vapor pressure"** means the pressure of the vapor phase of a substance, or the sum of the partial pressures of the vapor phases of individual substances in a mixture of substances, when in equilibrium with the non-vapor phase of the substance or substances.

**"Vapor-tight"** means not capable of allowing the passage of gases at the pressures encountered.

**“Vapor up control switch”** means, with respect to a vapor cleaning machine, a thermostatically controlled switch which shuts off or prevents condensate 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.

**"Vinyl coating"** means the application of any surface coating formulation, except ink and plastisol, to vinyl-coated fabric or vinyl sheets.

**“Visible gap”** means a gap of a deck fitting or roof opening of more than 1/8 inch (0.32 centimeters) between any gasket or seal and the opening that it is intended to seal.

**"Volatile organic compound" or "VOC"** means a volatile organic compound as that term is defined by the EPA at 40 CFR 51.100(s), as supplemented or amended, which is incorporated by reference herein.

**"Voltage reduction"** means a reduction in customer supply voltage of at least five percent by an electric distribution company in order to reduce load on an electric distribution system.

**"Wash coat"** means a coating containing binders that raise wood surfaces, prevent undesired staining, and control penetration.

**“Web”** means a surface coating operation where a continuous roll of substrate is fed.

**“Wiper primary seal”** means a continuous annular blade of flexible material (for example, rubber, urethane, or foam filled) fastened to a mounting bracket on the deck perimeter that spans the annular rim space and contacts the tank shell. A wiper seal system may consist of a single primary seal, or dual (multiple) seals where one seal is mounted above the other.

**“Working mode cover”** means, with respect to a solvent cleaning machine, any cover or other element of the machine's design that shields the machine's openings from outside air disturbances while parts are being cleaned in the machine.

**"Worst case operating conditions"** means the conditions of operation which result in the maximum VOC emission rate for any hour period for a continuous operation or the maximum VOC batch cycle emission rate for a batch operation, considering any enforceable limitations on the operation including those set forth in any applicable rule or regulation, permit, or operating certificate.

**“Zero gap”** means no gap between the tank shell and the seal shall exceed 0.06 inch. The cumulative length of all gaps exceeding 0.02 inch shall not be more than five percent of the circumference of the tank, excluding gaps less than 1.79 inches from vertical seams.

**“Zero gap pole wiper seal”** means a seal with no gap exceeding 0.06 inches between outer surface of the guidepole or gauge well and pole wiper seal.

#### **7:27-16.1A Purpose, scope, applicability, and severability**

- (a) This subchapter establishes requirements and procedures concerning the control and prohibition of air pollution by volatile organic compounds (VOC). The general purposes of this subchapter are as follows:
1. To require any stationary source operation or group of source operations located at a facility to utilize reasonably available control technology (RACT) to control VOC emissions. RACT is the lowest emission limitation that a particular source is capable of meeting by the application of air pollution control technology and/or pollution prevention measures which are reasonably available considering technological and economic feasibility. Specific applicability thresholds

are provided throughout the subchapter. Carbon monoxide limits are included for combustion sources, in order to control VOC emissions, which are also products of incomplete combustion; and

2. To establish standards and emission limits for certain vessels which contain VOCs and which may be carried or transported or are otherwise capable of being moved, including delivery vessels.
- (b) As set forth at N.J.A.C. 7:27-17.4(c), this subchapter's requirements for the implementation of control measures, including, but not limited to requirements for the installation and use of control apparatus, or the use of compliant coatings, shall apply with full force to Group II TXS until the Department amends this rule in response to EPA rule-making or otherwise.
  - (c) Whenever persons, equipment, control apparatus or any VOC subject to the provisions of this subchapter are also subject to the provisions of any other subchapters of this chapter, the requirements of the relevant provisions of this subchapter and all subchapters of this chapter will apply.
  - (d) Whenever a VOC subject to the emission rate provisions of this subchapter is also subject to the emission rate provisions of any other subchapters of the chapter, the relevant provisions of the subchapter requiring the lowest allowable rate will apply.
  - (e) Each owner and each operator of any equipment or source operation subject to this subchapter is responsible for ensuring compliance with all requirements of this subchapter. If there is more than one owner or operator of the equipment or source operation, each owner and each operator is jointly and severally liable for any penalties for violations of this subchapter.
  - (f) On and after April 25, 2004, no owner or operator of a source operation subject to a VOC emissions limit under this subchapter may comply with the limit through the use of discrete emission reduction (DER) credits.
  - (g) (Reserved)
  - (h) (Reserved)
  - (i) If any provision of this subchapter or the application thereof to any person or circumstance is adjudicated to be invalid or unenforceable to any extent, the remainder of this subchapter or its application to any person or circumstance other than those that are the subject of the adjudication shall continue to be unaffected by the adjudication.

#### **7:27-16.2 VOC stationary storage tanks**

- (a) The provisions of this section shall apply to any stationary storage tank that stores only VOC, or that stores VOC and non-VOC, except as set forth in (e) and (f) below.
- (b) No person shall cause, suffer, allow, or permit the following:
  1. The storage of any applicable VOC in any stationary storage tank that has a maximum capacity of 2,000 gallons (7,570 liters) or greater and is exposed to the rays of the sun unless:
    - i. The external surface of the tank is painted and maintained white, except that this provision shall not apply to words and logograms applied to the external surface of the storage tank for purposes of identification provided such symbols do not cover more than

20 percent of the external surface area of the tank's sides and top or more than 200 square feet (18.6 square meters), whichever is less; or

- ii. An equivalent method of emission control approved by the Department is used; and
2. The storage of any applicable VOC in any stationary storage tank having a maximum capacity of 10,000 gallons (37,850 liters) or greater unless, in addition to meeting the requirement in (b)1 above, such stationary storage tank is equipped with control apparatus as determined in accordance with the procedures for using Table 2A or as approved by the Department as being equally or more effective in preventing the emission of a VOC into the outdoor atmosphere.

### Procedure for Using Table 2A

Step 1: Determine the vapor pressure at standard conditions in pounds per square inch absolute of the VOC to be stored.

Step 2: Select the appropriate line in Table 2A for the vapor pressure determined in Step 1.

Step 3: Determine the maximum tank capacity in thousands of gallons.

Step 4: Find the tank capacity range classification for the vapor pressure determined under Step 1.

Step 5: Determine the control requirements in accordance with the following:

Range I: No control apparatus required under this subsection.

Range II: Conservation vent required.

Range III: Floating roof required.

TABLE 2A  
DETERMINANTS OF TYPE CONTROL APPARATUS REQUIRED FOR STORAGE  
OF VOLATILE ORGANIC COMPOUNDS

Vapor Pressure in PSIA @ 70°F		Tank Capacity in Thousands of Gallons			
		Range I	Range II		Range III
Greater than	But not Greater than	Not Greater than	Greater than	But not Greater than	Greater than
*0.02	0.03	4,500	4,500	14,000	14,000
0.03	0.04	4,500	4,500	11,000	11,000
0.04	0.06	3,500	3,500	8,000	8,000
0.06	0.08	2,500	2,500	6,000	6,000
0.08	0.10	2,000	2,000	4,500	4,500
0.10	0.15	1,600	1,600	3,500	3,500
0.15	0.2	1,050	1,050	2,500	2,500
0.2	0.3	750	750	1,600	1,600
0.3	0.4	550	550	1,250	1,250

Vapor Pressure in PSIA @ 70°F		Tank Capacity in Thousands of Gallons			
		Range I	Range II		Range III
Greater than	But not Greater than	Not Greater than	Greater than	But not Greater than	Greater than
0.4	0.5	475	475	1,075	1,075
0.5	0.6	400	400	900	900
0.6	0.7	350	350	750	750
0.7	0.8	300	300	650	650
0.8	1.0	260	260	550	550
1.0	1.2	210	210	475	475
1.2	1.4	190	190	400	400
1.4	1.6	170	170	350	350
1.6	1.8	150	150	300	300
1.8	2.1	125	125	260	260
2.1	2.4	110	110	225	225
2.4	2.7	100	100	200	200
2.7	3.0	90	90	180	180
3.0	3.5	80	80	160	160
3.5	4.0	70	70	145	145
4.0	4.5	60	60	130	130
4.5	5.0	50	50	115	115
5.0	5.5	50	50	105	105
5.5	6.0	50	50	95	95
6.0	6.5	40	40	85	85
6.5	7.0	40	40	75	75
7.0	7.5	40	40	70	70
7.5	8.0	35	35	65	65
8.0	8.5	35	35	60	60
8.5	9.5	30	30	55	55
9.5	10.5	25	25	50	50
10.5	11.5	20	20	45	45
11.5	13.0	10	10	40	40

\*Any VOC which has a vapor pressure of 0.02 pounds per square inch absolute at standard conditions is included in this line.

- (c) No person shall cause, suffer, allow, or permit the storage of any VOC having a vapor pressure of greater than 13.0 pounds per square inch absolute (672 millimeters of mercury) at the actual temperature existing at or near the liquid surface in any stationary storage tank having a maximum capacity of 1,000 gallons (3,785 liters) or greater unless such tank is equipped with a vapor control system to reduce the

rate of VOC emissions to the outdoor atmosphere by at least 90 percent by weight of the uncontrolled VOC emissions from the tank.

- (d) No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank subject to the provisions of either (b) above in Ranges II and III or (c) above and equipped with gauging and/or sampling systems unless such systems are vapor-tight.
- (e) The provisions of (b) and (c) above shall not apply to a stationary storage tank in Range II located underground at a depth of no less than eight inches (20.3 centimeters) below the surface measured to the highest point of the tank shell, or installed in other manner approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere.
- (f) The following exemptions apply:
  - 1. The provisions of (b) above shall not apply to a stationary storage tank, if the tank is:
    - i. Maintained under a controlled elevated temperature;
    - ii. Equipped with a vapor control system reducing by at least 98 percent the weight of VOC emissions to the outdoor atmosphere; or
    - iii. A pressurized storage tank designed to operate in excess of 15 pounds per square inch gauge (psig) without any emissions to the atmosphere except under emergency conditions.
  - 2. Any of the following tanks shall be exempt from (q) below:
    - i. Any fixed roof storage tank having a capacity of less than 40,000 gallons;
    - ii. Any Range I fixed roof storage tank whose contents has a vapor pressure of less than or equal to 2 psia at standard conditions; and
    - iii. Any Range I or Range II storage tank equipped with a floating roof.
  - 3. Any external floating roof tank in Range III that was in existence on (the day before the operative date of these amendments), and that is not degassed and emptied within 120 days after (the operative date of these amendments) shall be temporarily exempt from complying with (I)1i below if the operator has demonstrated to the Department that in order to properly bolt the covers for access hatches and gauge float wells, a flange or other comparable device must be welded to the fitting or other hot-work must be performed. The operator shall use equivalent means, such as clamping, to secure the covers during the interim period. However, the owner or operator must comply with (I)1i below the first time the tank is degassed and emptied after 120 days after (the operative date of these amendments).
  - 4. Any external floating roof tank that contains more than 97 percent by volume crude oil or more than 97 percent by volume oily wastewater and/or slop oil regulated by 40 C.F.R. Part 60, Subpart QQQ, incorporated herein by reference, shall be exempt from (I)4 below, but shall comply with all other applicable requirements of this subchapter.
  - 5. Any floating-roof tank shall not be required to meet the gap seal requirements at (I)3i through x



below while the roof is resting on its legs during the processes of draining, degassing or refilling the tank.

6. Any floating roof tank subject to a Federally enforceable condition limiting its annual in-service roof landing VOC emissions to less than five tons as calculated by AP-42, Chapter 7, may be exempt from (p) below, at the owner or operator's discretion, provided that the owner or operator shall maintain the records of these calculations pursuant to (s) below and the tank's Operating Permit or Preconstruction Permit, as applicable.
  7. Any floating roof tank subject to a Federally enforceable condition in its Operating Permit or Preconstruction Permit, as applicable, limiting the vapor pressure of its contents to less than 1.5 psia at standard conditions, shall be exempt from (p) below only if the tank's records, maintained pursuant to (s)1 below, show that the vapor pressure of the tank's contents is less than 1.5 psia under standard conditions.
  8. Any external floating roof tank in Range III that is subject to (l)1vi below shall be exempt from (l)11 below.
  9. Any tank at (b) above is exempt from the vapor-tight condition at (d) above when gauging or sampling is taking place. In addition, a floating roof tank, is exempt from the vapor-tight condition at (d) above when the condition at n)1 or (o)1 below, as applicable, is met during refilling.
- (g) (Reserved)
- (h) No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank in Range III as determined by Table 2A equipped with an external floating roof, unless any such storage tank containing a VOC having a vapor pressure of 1.0 pounds per square inch absolute (50 millimeters of mercury) or greater at standard conditions and having a maximum capacity of 20,000 gallons (75,700 liters) or greater is equipped with a double seal-envelope combination or equipment approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere. For the secondary seal, the gap area of gaps exceeding one-eighth inch (0.32 centimeters) in width between the seal and the tank wall shall not exceed 1.0 square inch per foot (6.5 square centimeters per 0.3 meters) of tank diameter. Any secondary seal shall be intact, with no visible holes, tears or other openings. The requirements of this subsection shall remain in effect for any such tank until the rim seal system requirements at (l)3 below become effective for that tank.
- (i) (Reserved)
- (j) Any delivery vessel that contains any applicable VOC and is located at a facility and is vented to the atmosphere for more than 30 consecutive days shall be considered a stationary storage tank for the purposes of this section.
- (k) (Reserved)
- (l) No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank unless the provisions of this subsection are met.
1. The owner or operator of an external floating roof tank in Range III shall, no later than (120 days after the operative date of these amendments) or the first time the tank is emptied and degassed,

whichever occurs first, if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments):

- i. Equip each access hatch and gauge float well with a cover that is gasketed and bolted. Equip each gauge float well with a cover that is either gasketed and weighted or gasketed and bolted. The cover shall be closed at all times, with no visible gaps, except when the hatch or well must be opened for access;
- ii. Equip each gauge hatch/sample well with a cover that is gasketed. The cover shall be closed at all times, with no visible gaps, except when the hatch or well must be opened for access;
- iii. Gasket or cover each adjustable roof leg with a VOC impervious sock at all times when the roof is floating;
- iv. Gasket each rim vent. Rim vents shall be closed at all times, with no visible gaps, when the roof is floating; and shall be set to open only when the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting;
- v. Gasket each vacuum breaker. Vacuum breakers shall be closed at all times, with no visible gaps, when the roof is floating; and shall be set to open only when the roof is being floated off or is being landed on the roof leg supports;
- vi. Equip each open floating roof drain with a slotted membrane fabric cover or other device with an equivalent control efficiency that covers at least 90 percent of the area of the opening;
- vii. Equip each unslotted guidepole well with a gasketed sliding cover and a flexible fabric sleeve or wiper;
- viii. Equip each unslotted guidepole with a gasketed cover at the end of the pole. The cover shall be closed at all times, with no visible gaps, except when gauging or sampling;
- ix. Equip each slotted guidepole with a gasketed cover, a pole wiper and a pole sleeve. The pole sleeve shall be extended into the stored liquid;
- x. Equip each slotted guidepole having a pole float with a gasketed cover, a pole wiper, and a pole float wiper. The wiper or seal of the pole float shall be at or above the height of the pole wiper;
- xi. Cover each slotted guidepole opening with a gasketed cover at all times, with no visible gaps, except when the cover must be opened for access;
- xii. Maintain the pole float in a condition such that it floats within the guidepole at all times except when it must be removed for sampling or when the tank is empty;

- xiii. Except for vacuum breakers and rim vents, ensure that each opening in the external floating roof shall provide a projection below the liquid surface; and
  - xiv. Except for vacuum breakers, rim vents, roof drains, and leg sleeves, equip all other openings in the roof with a gasketed cover or seal that is closed at all times, with no visible gaps, except when the cover or seal must be opened for access.
2. In lieu of complying with the requirement of no visible gap at (l)1i, ii, iv, v, viii, xi and xiv above, the owner or operator of an external floating roof tank in Range III may, no later than (120 days after the operative date of these amendments) if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments), maintain all roof openings in a leak-free condition at all times except during preventive maintenance, repair, or inspection periods specified at (r) below.
3. The owner or operator of an external floating roof tank in Range III shall equip the tank with a rim seal system meeting the following requirements prior to the initial fill if the tank was constructed on or after (the operative date of these amendments), or prior to the date the tank is refilled after being degassed for the first time after (the operative date of these amendments), but no later than May 1, 2020 if the tank was in existence on (the day before the operative date of these amendments):
- i. The primary seal shall be a mechanical shoe or liquid mounted;
  - ii. The secondary seal shall be rim mounted and shall not be attached to the primary seal;
  - iii. Gaps between the tank shell and the primary seal shall not exceed 1.3 centimeters (1/2 inch) for a cumulative length of 30 percent of the circumference of the tank, and 0.32 centimeters (1/8 inch) for 60 percent of the circumference of the tank. No gap between the tank shell and the primary seal shall exceed 3.8 centimeters (1-1/2 inches). No continuous gap between the tank shell and the primary seal greater than 0.32 centimeters (1/8 inch) shall exceed 10 percent of the circumference of the tank;
  - iv. Gaps between the tank shell and the secondary seal shall not exceed 0.32 centimeters (1/8 inch) for a cumulative length of 95 percent of the circumference of the tank. No gap between the tank shell and the secondary seal shall exceed 1.3 centimeters (1/2 inch);
  - v. Mechanical shoe primary seals shall be installed so that one end of the shoe extends into the stored organic liquid and the other end extends a minimum vertical distance of 61 centimeters (24 inches) above the stored organic liquid surface;
  - vi. The geometry of the shoe shall be such that the maximum gap between the shoe and the tank shell is no greater than doubled the gap allowed by the seal gap criteria specified in (l)3iii above for a length of at least 46 centimeters (18 inches) in the vertical plane above the liquid surface;
  - vii. The primary seal envelope shall be made available for unobstructed inspection by the

Department, upon request, along its circumference. In the case of riveted tanks with resilient filled primary seals, at least eight such locations shall be made available; for all other types of seals, at least four such locations shall be made available. If the Department deems it necessary, further unobstructed inspection of the primary seal may be required to determine the seal's condition along its entire circumference;

- viii. The secondary seal shall be installed in a way that permits probes up to 3.8 centimeters (1-1/2 inches) in width to be inserted to measure gaps in the primary seal;
  - ix. There shall be no holes, tears or openings in the secondary seal or in the primary seal envelope surrounding the annular vapor space enclosed by the roof edge, seal fabric, and secondary seal; and
  - x. Except during preventive maintenance, repair, or inspection periods specified at (r) below that do not exceed 72 hours, both the primary seal and the secondary seal shall cover the annular space between the floating roof and the wall of the storage tank in a continuous fashion, as required at (l)3iii and iv above.
4. If an external floating roof tank in Range III stores any VOC with vapor pressure three pounds per square inch absolute or greater at standard conditions, the tank shall be equipped with a domed roof before the tank is refilled after the first time the tank is degassed after (the operative date of these amendments), but no later than May 1, 2020 if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments).
5. The owner or operator of a domed external floating roof tank in Range III that is already in operation as of (the operative date of these amendments) shall, prior to the date the tank is refilled after being degassed the first time after (the operative date of these amendments), but no later than May 1, 2020:
- i. Comply with (l)1i through xiv above;
  - ii. Equip the tank with a rim seal system consisting of either
    - (1) A liquid-mounted primary seal meeting the requirements for primary seals at (l)3iii, vii, and x above and having no tears or openings, or
    - (2) A primary and a secondary seal meeting the requirements at (l)3i through x above, including compliance dates, except that:
      - (A) A mechanical shoe primary seal shall have one end extend a minimum vertical distance of 15 centimeters (six inches) above the stored organic liquid surface and the other end extend into the liquid a minimum of 10 centimeters (four inches) instead of meeting the requirement at (l)3v above, and
      - (B) A vapor-mounted wiper primary seal may be used on a tank with a shell

that has riveted or lap-welded horizontal seams instead of the liquid mounted or mechanical shoe primary seal required at (I)3i above; and

- iii. Ensure that the concentration of organic vapor in the vapor space above the domed external floating roof does not exceed 30 percent of its lower explosive limit.
6. If, on or after (the operative date of these amendments), the owner or operator adds a domed roof to an external floating roof tank in Range III, at the time the owner or operator adds the domed roof the owner or operator shall:
- i. Equip the tank with a rim seal system consisting of primary and secondary seals meeting the specifications and compliance dates listed at (I)3 above; and
  - ii. Ensure that the concentration of organic vapor in the vapor space above the domed external floating roof does not exceed 30 percent of its lower explosive limit.
7. On or before the date an internal floating roof tank in Range III is refilled after being degassed for the first time after (the operative date of these amendments), but no later than May 1, 2020, if the tank was in existence on (the day before the operative date of these amendments), or on initial fill if the tank is constructed on or after (the operative date of these amendments) the owner or operator of the tank shall:
- i. Equip each fixed roof support column and well with a sliding cover that is gasketed or with flexible fabric sleeves;
  - ii. Equip each ladder well with a gasketed cover. The cover shall be closed at all times, with no visible gaps, except when the well must be opened for access;
  - iii. Equip and maintain other roof openings according to the specifications at (I)1 or 2 above;
  - iv. Equip the tank with a rim seal system consisting of either
    - (1) A liquid-mounted primary seal meeting the requirements for primary seals at (I)3iii, vii, and x above and having no tears or openings, or
    - (2) A primary and a secondary seal meeting the requirements at (I)3i through x above, except that
      - (A) A mechanical shoe primary seal shall have one end extend a minimum vertical distance of 15 centimeters (six inches) above the stored organic liquid surface and the other end extend into the liquid a minimum of 10 centimeters (four inches) instead of meeting the requirement at (I)3v above, and
      - (B) A vapor-mounted wiper primary seal may be used on a tank with a shell that has riveted or lap-welded horizontal seams instead of the liquid mounted or mechanical shoe primary seal required at (I)3i above;

- v. For an internal floating roof installed prior to July 23, 1984, ensure that the concentration of organic vapor in the vapor space above the internal floating roof shall not exceed 50 percent of its lower explosive limit; and
  - vi. For an internal floating roof installed after July 23, 1984, ensure that the concentration of organic vapor in the vapor space above the internal floating roof shall not exceed 30 percent of its lower explosive limit.
8. Any VOC stationary storage tank in Range III as determined from Table 2A shall meet one of the following:
- i. If the tank was constructed or installed on or after December 17, 1979, the tank shall be provided with a double seal floating roof or other control apparatus approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere. This requirement shall remain in effect for any such tank until (I)3, 5, 6 or 7 above becomes applicable for that tank; or
  - ii. If the tank was constructed or installed prior to December 17, 1979, the requirements of (I)3, 5, 6 or 7 above shall apply as applicable.
9. By (120 days after the operative date of these amendments) if a Range III fixed-roof tank without an internal floating roof was in existence on (the day before the operative date of these amendments), or by the initial fill if a tank is constructed on or after (the operative date of these amendments), the owner or operator shall:
- i. Equip any gauging or sampling device on the tank with a leak-free cover which shall be closed at all times, with no visible gaps, except during gauging or sampling;
  - ii. Maintain the fixed roof in a leak-free condition with no holes, tears or uncovered openings; and
  - iii. Install and maintain each roof opening in a leak-free condition at all times.
10. No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank in Range I or II as determined by Table 2A equipped with an external floating roof, unless any such storage tank containing a VOC having a vapor pressure of 1.0 pounds per square inch absolute (50 millimeters of mercury) or greater at standard conditions and having a maximum capacity of 20,000 gallons (75,700 liters) or greater is equipped with a double seal-envelope combination or equipment approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere. For the secondary seal, the gap area of gaps exceeding one-eighth inch (0.32 centimeters) in width between the seal and the tank wall shall not exceed 1.0 square inch per foot (6.5 square centimeters per 0.3 meters) of tank diameter. Any secondary seal shall be intact, with no visible holes, tears or other openings.

11. No person shall cause, suffer, allow, or permit the storage of any VOC in any stationary storage tank equipped with an external floating roof unless all openings in such roof, excluding emergency roof drains, are covered when not in active use. The tank shall be exempt from this paragraph if the tank meets the exemption criteria at (f)7 above.
- (m) If a tank is equipped with an external or internal floating roof, the roof shall float on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled.
- (n) When performing a roof landing of an external floating roof tank:
  1. When the roof is resting on the leg supports or suspended by cables or hangers, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible; and
  2. Any in-service roof landing shall be with the landed height of the floating roof at its minimum setting.
- (o) When performing a roof landing of an internal floating roof tank:
  1. When the roof is resting on its leg supports or suspended by cables or hangers, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible; and
  2. After the tank is refilled after being degassed for the first time after (the operative date of these amendments), any in-service roof landing shall be with the landed height of the floating roof at its minimum setting.
- (p) The owner or operator of any floating roof tank, not exempt pursuant to (f)6 or (f)7 above, used to store a VOC shall:
  1. Submit a complete facility-wide tank VOC control plan to the Department for approval at the address listed at (v) below as follows:
    - i. For any floating roof tank not exempt pursuant to (f)6 above, and existing as of (the operative date of these amendments), submit to the Department in writing the complete facility-wide tank VOC control plan by December 1, 2009; or
    - ii. For any new tank, excluding a tank exempt pursuant to (f)6 above, added to a facility, submit to the Department in writing a new or updated complete facility-wide tank VOC control plan by 120 days after the installation of the newly constructed tank(s);
  2. Include in the facility-wide tank VOC control plan, for all floating roof tanks, except those floating roof tanks exempt pursuant to (f)6 above, the information in (p)2i and ii below or (p)2i and iii below, as applicable:
    - i. A list of each tank at the facility and the following for each tank:
      - (1) The tank type;
      - (2) The tank volume;

- (3) The tank diameter;
    - (4) The tank contents;
    - (5) The permit activity number;
    - (6) Any other identifying numbers; and
    - (7) The Bureau of Release Prevention schedule for tank inspection.
  - ii. A schedule to implement one or more of the following emission controls, which must be implemented by (10 years after the operative date of these amendments). This schedule shall be consistent with the facility's schedule for tank removal from service for normal inspection and maintenance and with the facility's schedule for the installation of any new tank(s):
    - (1) A tank configuration such that the bottom of the roof deck can be lowered to one foot or less from the top-most point of the surface of the tank floor;
    - (2) A method that routes all vapors from the tank to a vapor control device with a control efficiency of at least 90 percent, from the time the roof is landed until it is within 10 percent by volume of being refloated; or
    - (3) Other measures approved by the Department as being equally or more effective in preventing VOC emissions to the outdoor atmosphere.
  - iii. An emissions averaging plan to operate all Range III floating roof tanks that store gasoline, except those tanks exempt pursuant to (f)6 above, such that their average annual in-service roof landing VOC emissions, as calculated in accordance with Chapter 7.1.3.2.2 "Roof Landings" of AP-42, as supplemented or amended and incorporated herein by reference, or as calculated using another method approved by the Department in accordance with (v) below, and after applying any applicable control efficiencies, is less than:
    - (1) Five tons per tank per calendar year from 2011 through 2013;
    - (2) Four tons per tank per calendar year from 2014 through 2016;
    - (3) Three tons per tank per calendar year from 2017 through 2019; and
    - (4) Two tons per tank per calendar year in 2020 and subsequent years.
- (q) On and after May 1, 2010, any part of a degassing and cleaning operation of a stationary storage tank performed during the period May 1 through September 30 shall be performed only as follows:
  1. The owner or operator shall degas a tank storing a VOC with a vapor pressure equal to or greater than 0.5 psia at standard conditions as follows:



- i. Empty the tank of the VOC liquid;
  - ii. Minimize VOC vapors in the tank vapor space by one of the following methods:
    - (1) Exhaust VOCs contained in the tank vapor space to a vapor control system rated at a minimum 95 percent efficiency until the organic vapor concentration is 5,000 parts per million by volume (ppmv) or less as methane, or is 10 percent or less of the lower explosive limit, whichever is less;
    - (2) Displace VOCs contained in the tank vapor space to a vapor control system rated at a minimum 95 percent efficiency by filling the tank with a suitable liquid until 90 percent or more of the maximum operating level of the tank is filled. Suitable liquids are organic liquids having a TVP of less than 0.5 psia, water, clean produced water, or produced water derived from crude oil having a TVP less than 0.5 psia; or
    - (3) If the tank is a free-water knockout tank, a person may degas the tank vapor space by restricting the outflow of water and floating off the oilpad, such that at least 90 percent of the tank volume is displaced;
  - iii. Discharge or displace the VOC vapors contained in the tank vapor space to a vapor control system that is vapor-tight and free of liquid leaks; and
  - iv. As appropriate, temporarily remove for no longer than one hour, a suitable tank fitting, such as a manway, to facilitate connection to an external vapor control system.
2. The owner or operator shall clean a tank storing a VOC with vapor pressure equal to or greater than 0.5 psia at standard conditions only if:
- i. At least one of the following cleaning agents is used:
    - (1) Diesel fuel;
    - (2) A solvent with an initial boiling point of greater than 302 degrees Fahrenheit;
    - (3) A solvent with a vapor pressure less than 0.5 psia;
    - (4) A solvent with 50 grams per liter VOC content or less; or
    - (5) Some other Department-approved cleaning agent; or
  - ii. Steam cleaning is performed.
3. The owner or operator shall control emissions from the sludge removed from a tank that stores a VOC with a vapor pressure equal to or greater than 1.5 psia at standard conditions by:
- i. During sludge removal, controlling emissions from the receiving vessel by operating a vapor control system that reduces VOC emissions by at least 95 percent;

- ii. Transporting removed sludge in containers that are vapor-tight and free of liquid leaks; and
  - iii. Storing removed sludge, until final disposal, in containers that are vapor-tight and free of liquid leaks, or in tanks that comply with (b) above.
- (r) The owner or operator of a VOC stationary storage tank in Range III shall have an inspection performed by an authorized inspector and maintain the tank as follows:
1. The findings of any tank inspection, whether completed or not, shall be recorded on the Inspection Form at N.J.A.C. 7:27-16 Appendix II, incorporated herein by reference, in accordance with the rule's requirements. If an inspection is stopped before completion, indicate the reason for this action in section J "Comments" of the Inspection Form;
  2. During the inspection, the authorized inspector performing the inspection must have a copy of the relevant portions of the Preconstruction Permit or the Operating Permit pertinent to the tank being inspected. The authorized inspector shall compare the permit to the existing tank and actual operating conditions of the tank. The authorized inspector shall record any discrepancies between the permit equipment description and the existing tank, or the permit conditions and the actual operating conditions of the tank, as verified during an inspection, in section J "Comments" of the Inspection Form;
  3. Annually inspect the ground level periphery of each tank for possible leaks in the tank shell. Complete section D "Ground Level Inspection" of the Inspection Form;
  4. Annually complete all necessary calculations and record all required data accordingly in the Inspection Form and Fugitive Emissions Form at N.J.A.C. 7:27-16 Appendix II;
  5. For an external floating roof tank in Range III, demonstrate compliance with (l)1 through 3 above, as applicable, by:
    - i. Annually, from the platform, visually inspecting the roof to check for permit and rule violations, and visually checking the roof for unsealed roof legs, open hatches, open emergency roof drains, or open vacuum breakers. Indicate presence of any tears in the fabric of the visible seals. Record the findings under section F of the Inspection Form;
    - ii. Annually, inspecting the deck fittings for visible gaps using the 1/8 inch probes, or inspecting the deck fittings for a leak-free condition using EPA Method 21 set forth at 40 CFR Part 60 Appendix A, as supplemented or amended and incorporated herein by reference or, instead of EPA Method 21, using another method approved by the Department. Record any leaks above 500 ppm in the Fugitive Emissions Form;
    - iii. Annually, inspecting the entire secondary seal for the gap requirements at (l)3iv above using the 1/8 inch, 1/2 inch, and 1-1/2 inch probes. Record the gap data in section F(4) of the Inspection Form. Record all cumulative gaps between 1/8 inch and 1/2 inch, between 1/2 inch and 1-1/2 inch, and in excess of 1-1/2 inches, in section G of the Inspection Form. Measure all secondary seal gaps greater than 1/2 inch for length and width, and

- record in section J "Comments" of the Inspection Form; and
- iv. Every five years and each time the tank is degassed, inspecting the entire primary seal for the gap requirements at (l)3iii above using the 1/8 inch, 1/2 inch and 1-1/2 inch probes. The primary seal shall be inspected by holding back the secondary seal. Record the gap data in section F(5) of the Inspection Form. Record all cumulative gaps between 1/8 inch and 1/2 inch; between 1/2 inch and 1-1/2 inch; and in excess of 1-1/2 inches, in section G of the Inspection Form;
6. For a domed external floating roof tank in Range III existing as of the operative date of these new rules, demonstrate compliance with (l)5 above, by:
    - i. Annually, using an explosimeter, measuring the organic vapor concentration in the vapor space above the floating roof in terms of the lower explosive limit (LEL), and recording the reading in section E of the Inspection Form;
    - ii. Annually, from an opening in the domed or fixed roof, visually inspecting the roof to check for permit and rule violations, and visually checking the roof for unsealed roof legs, open hatches, open emergency roof drains, or open vacuum breakers. Indicate presence of any tears in the fabric of the visible seal. Record the findings under section F of the Inspection Form; and
    - iii. Each time the tank is degassed, but no less than once every 10 years, performing the requirements at (r)5ii (excluding EPA Method 21), iii and iv above;
  7. For a domed external floating roof tank in Range III that had a dome installed after the operative date of these new rules, demonstrate compliance with (l)6 above, by performing the requirements at (r)6 above;
  8. For an internal floating roof tank in Range III, demonstrate compliance with (l) above, by performing the requirements at (r)6 above;
  9. For a fixed roof tank in Range III that is subject to (l)9 above, annually demonstrate compliance with (l)9 above by inspecting the fittings located on the roof, piping, pressure relief valves and all other valves, to ensure they are leak-free using EPA Method 21 set forth at 40 CFR Part 60 Appendix A incorporated herein by reference, or using another method approved by the Department. Record any readings in excess of 500 ppm in the Fugitive Emissions Form;
  10. The owner or operator of any VOC stationary storage tank in Range III shall repair or replace any piping, valve, vent, seal, gasket, or cover of a roof opening that:
    - i. Is defective;
    - ii. Has a visible gap or is not leak-free; or
    - iii. Does not meet any applicable requirement of this section; and
  11. The owner or operator of a VOC stationary storage tank in Range III shall perform the repair or replacement at (r)10 above:

- i. If the tank is already degassed, prior to filling; or
  - ii. If the tank is not degassed, within 45 days after discovery of the needed repair or replacement. If a repair cannot be completed and the vessel cannot be emptied within 45 days, the owner or operator may use up to two extensions of up to 30 additional days each. Documentation of the owner or operator's decision to use an extension shall include a description of the failure, shall document that alternative storage capacity is unavailable, and shall specify a schedule of actions that will ensure that the control equipment will be repaired or the vessel will be completely emptied as soon as practicable.
- (s) The owner or operator shall maintain on-site, for each tank, for the time period specified at N.J.A.C. 7:27-16.22(a), unless another time period is specified below:
1. Records that specify each VOC stored and the vapor pressure of each VOC at standard conditions;
  2. For the owner or operator of a floating roof tank, records of the roof landing emission information required at N.J.A.C. 7:27-21.5(j)1;
  3. If the owner or operator of a floating roof tank has not implemented all control measures pursuant to the tank VOC control plan submitted pursuant to (p) above, or if a floating roof tank is exempt pursuant to (f)5 above, the records of each floating roof landing event including, but not limited to, tank contents before landing and after refilling; landed height of the floating roof; height of any liquid remaining in the bottom of the tank after landing; duration of landing; landing emissions calculated using AP-42, Chapter 7 methodology, and any other records needed to create the "Floating Roof Landing Emission Summary Report" required at N.J.A.C. 7:27-21.5(j)2;
  4. Records relating to the installation of vapor control devices described at (t) below;
  5. For the lifetime of the tank, all inspection reports required pursuant to (r) above;
  6. Records of all tank degassing, cleaning and sludge removal activities performed pursuant to (q) above;
  7. Records of all tank integrity testing schedules for Range III tanks that N.J.A.C. 7:1E-4.2(c)1v requires to be included in the "Discharge, Prevention, Containment and Countermeasure Plan"; and
  8. Repair and replacement documentation required at (r)11ii above.
- (t) On and after (the operative date of these amendments), the owner or operator of any floating roof stationary storage tank that installs a vapor control device in accordance with (p)2ii above shall record operating parameters as follows:
1. For a thermal oxidizer, the owner or operator shall record the following on a continuous basis or at a frequency approved by the Department:
    - i. The operating temperature at the exit of the combustion chamber;
    - ii. The carbon monoxide concentration in the flue gas emitted to the outdoor atmosphere;

and

- iii. Upon request of the Department, any other operating parameter relevant to the prevention or control of air contaminant emissions from the tank or the oxidizer;
2. For a vapor control system that uses carbon or other adsorptive material, the owner or operator shall record the following on a continuous basis or at a frequency approved in writing by the Department:
    - i. The concentration of the total applicable VOCs in the flue gas emitted to the outdoor atmosphere; or
    - ii. Provided that the owner or operator confirms daily that the automatic switching between carbon beds is functioning in accordance with permit conditions, the date of carbon bed replacement; and, upon request of the Department, any other operating parameter relevant to the prevention or control of air contaminant emissions from the tank or the adsorber; and
  3. For any other vapor control device, upon request of the Department, any operating parameter relevant to the prevention or control of air contaminant emissions from the tank or that vapor control device.
- (u) If, during an inspection required at (r) above, or at any other time, the owner or operator determines that a tank does not comply with (l) above, the owner or operator shall submit a written report to the Department including the cause of the non-compliance, corrective actions to achieve compliance and measures taken to prevent a re-occurrence of the non-compliance. If the facility has an operating permit, in accordance with N.J.A.C. 7:27-22, the owner or operator shall include this report as part of the periodic compliance reports required at N.J.A.C. 7:27-22.19(d) and (f). If the facility does not have an operating permit, the owner or operator shall submit this report to the Department within three business days after becoming aware of the non-compliance.
- (v) An owner or operator that seeks Department approval for an alternate method for calculating a tank's roof landing emissions pursuant to (p)2iii above shall:
1. Prepare an application that includes:
    - i. A description of the proposed alternate method;
    - ii. The parameters in the alternate method; and
    - iii. Supporting documentation that justifies the use of the alternate method; and
  2. Submit a complete application in writing to the Department at:

Assistant Director, Air Quality Permitting Element  
Division of Air Quality  
New Jersey Department of Environmental Protection  
401 East State Street  
PO Box 027

Trenton, NJ 08625-0027

### **7:27-16.3 Gasoline transfer operations**

- (a) This section shall apply to any gasoline transfer operation and to the storage, transportation, and dispensing of gasoline for the refueling of vehicles or for use in any other type of operation including, but not limited to, agricultural, aviation, industrial, commercial, construction, and marine operations.
- (b) This section shall not apply to the following:
  - 1. The loading of gasoline as cargo into a marine tank vessel. Marine tank vessel loading operations that occur in New Jersey or in New Jersey coastal waters are subject to the provisions at N.J.A.C. 7:27-16.5;
  - 2. The transfer of gasoline into a stationary storage tank during construction ballasting; and
  - 3. The transfer of gasoline into or from portable fuel containers.
- (c) No person shall cause, suffer, allow, or permit the transfer of gasoline into a receiving vessel having a maximum capacity of 2,000 gallons (7,570 liters) or greater, unless the following requirements are met:
  - 1. The transfer is made:
    - i. Through a submerged fill pipe. If the receiving vessel is a stationary storage tank (either above ground or underground), the submerged fill pipe shall be permanently affixed to the tank; or
    - ii. By some other means approved by the Department as being equally or more effective in reducing total applicable VOC emissions into the outdoor atmosphere during transfer; or
  - 2. The manufacturing process vessel was installed before December 17, 1979.
- (d) No person shall cause, suffer, allow, or permit the transfer of gasoline from a delivery vessel into any stationary storage tank having a maximum capacity of 2,000 gallons (7,570 liters) or greater unless:
  - 1. The storage tank is equipped and operating with one of the following emission controls:
    - i. A vapor control system that:
      - (1) Reduces the total applicable VOC emissions into the outdoor atmosphere by no less than 98 percent of the concentration of applicable VOC by volume in the air-vapor mixture displaced during the transfer of gasoline; and
      - (2) Includes a pressure/vacuum relief valve on each atmospheric vent which remains closed during the gasoline transfer; or
    - ii. A floating roof; and
  - 2. The storage tank meets the requirements of N.J.A.C. 7:27-16.2.
- (e) Except as provided in (f) and (h) below, no person shall cause, suffer, allow, or permit the transfer of gasoline into any gasoline laden vehicular fuel tank, unless the following requirements are met:
  - 1. The transfer is made using a vapor control system that is approved by the Department and that:

- i. Reduces the total applicable VOC emissions into the outdoor atmosphere by no less than 95 percent of the concentration of applicable VOC by volume in the air-vapor mixture displaced during the transfer of gasoline; and
    - ii. Prevents overfilling and spillage;
  2. If the transfer is made at a gasoline dispensing facility, the vapor recovery system shall be one of the following:
    - i. A system that was certified by CARB prior to July 25, 2001;
    - ii. A system that has been certified by CARB on or after July 25, 2001;
    - iii. A system that was certified by CARB prior to July 25, 2001; and any replacement parts/equipment/components and any subsequent construction modifications:
      - (1) Are approved in an Executive Order or approval letter issued by CARB on or after July 25, 2001; and
      - (2) Do not decrease the VOC emission control efficiency of the system; or
    - iv. A system that is equivalent for the purpose of VOC emission control to a CARB certified system and that is approved by the Department and EPA;
  3. At a gasoline dispensing facility which was constructed on or June 29, 2003, and for which a construction permit was issued by the Department after June 29, 2003, each dispensing device at a gasoline dispensing facility which dispenses more than one grade of gasoline shall utilize a unihose system for dispensing gasoline; and
  4. Each dispensing device at a gasoline dispensing facility shall meet the following requirements:
    - i. Each nozzle shall have a check valve located in the nozzle;
    - ii. At a facility with a vacuum assist vapor control system, each nozzle shall be equipped with a splash-guard that prevents spillage during refueling; and
    - iii. Each dispensing device and its nozzle(s) shall be designed to be compatible, such that:
      - (1) The nozzle together with its vapor boot fits into the housing in which it is hung on the dispensing device; and
      - (2) The nozzle's vapor check valve remains in the closed position when the nozzle is properly hung on the dispensing device.
- (f) Notwithstanding (e) above, the provisions of (e) above shall not apply as follows:
  1. The provisions of (e) above shall not apply to the transfer of gasoline into a vehicular fuel tank at a gasoline dispensing facility if:
    - i. The facility is located at a marina and used exclusively for the refueling of marine vehicles;
    - ii. The maximum capacity of each gasoline stationary storage tank at the facility is less than 2,000 gallons (7,570 liters);

- iii. The vehicle being refueled is an aircraft; or
- iv. The facility meets the following:
  - (1) The facility does not have, and has never had, for any twelve-month period subsequent to February 6, 1989, an average monthly throughput of greater than 10,000 gallons (37,850 liters), determined in accordance with (g) below; and
  - (2) If the gasoline dispensing facility commenced operation after June 29, 2003, the facility does not have any stationary storage tanks which are subject to the requirements of (d) above; and
- 2. The provisions of (e) 4 above shall not apply to dispensing devices at a gasoline dispensing facility until June 29, 2005, if construction of the dispensing device commenced prior to June 29, 2003; or a permit for the construction of the dispensing device was issued by the Department prior to June 29, 2003.
- (g) For the purposes of (f)iv above or (h) below, the average monthly throughput of a gasoline dispensing facility shall be an average of the facility's monthly throughputs between September 1, 1986, and August 31, 1987, or during any subsequent period of twelve consecutive months.
- (h) If a gasoline dispensing facility, which has been exempt from the provisions of (e) above pursuant to (f)lii, but which on or after March 28, 1992, becomes subject to (e) because the facility's average monthly throughput increases such that it exceeds 10,000 gallons (37,850 liters) during at least one 12-month period, the owner or operator shall ensure that no gasoline is dispensed at the facility unless the requirements of (e) above are met in accordance with the following schedule:
  - 1. Within three months of the facility's having an average monthly throughput of more than 10,000 gallons of gasoline, the owner or operator shall submit to the Department a completed application for a permit and certificate, pursuant to N.J.A.C. 7:27-8, for the construction, installation, and operation of a vapor control system and any other modifications needed for the facility to meet the requirements of (e) above;
  - 2. Within nine months of the facility's having an average monthly throughput of more than 10,000 gallons of gasoline, the owner or operator shall commence construction to comply with (e) above, in accordance with the permit issued by the Department pursuant to N.J.A.C. 7:27-8; and
  - 3. Within 18 months of the facility's having an average monthly throughput of more than 10,000 gallons of gasoline, the owner or operator shall achieve compliance with (e) above.
- (i) The owner or operator of a gasoline dispensing facility shall perform the following tests:
  - 1. The owner or operator shall demonstrate the facility's vapor control system is performing properly, as follows:
    - i. Each of the tests set forth in Table 3A below, that are applicable to the facility, shall be conducted in accordance with the schedule for testing given in the table.
    - ii. The tests required to be performed pursuant to (i)1i above shall be conducted utilizing the applicable CARB test method cited in Table 3A (except that the Static Pressure Performance Test shall be modified as indicated in Table 3A) which are incorporated herein by reference or utilizing some other method approved by the Department and USEPA. A copy of any CARB procedure cited in Table 3A may be downloaded from CARB's website at <http://www.arb.ca.gov/vapor> or obtained from the Department at the following address:



New Jersey Department of Environmental Protection  
 Bureau of Technical Services  
 PO Box 437  
 Trenton, NJ 08625-0437

- iii. A vapor control system shall be deemed to have passed a test conducted pursuant to i above if it meets the performance standards and specifications which are set forth in CARB's Vapor Recovery Certification Procedure (CP - 201), as amended, and which are applicable to the test. A copy of CARB's Vapor Recovery Certification Procedure may be downloaded from CARB's website at <http://www.arb.ca.gov/vapor> or obtained from the Department at the following address:

New Jersey Department of Environmental Protection  
 Bureau of Technical Services  
 PO Box 437  
 Trenton, NJ 08625-0437

- iv. If the vapor control system at a facility fails any test required to be performed pursuant to (i)1 above, the owner or operator shall have the system repaired and retested within 14 days of failure of the test.
- v. If the vapor control system fails any retesting required to be performed pursuant to (i)1iv above, the following procedures shall be followed:

- (1) The owner or operator shall notify the Department in writing within 72 hours of the failure. Such notification shall be submitted to the applicable regional office of the Department at the following address:

New Jersey Department of Environmental Protection  
 Bureau of Minor Source Investigation  
 Central Regional Office Air and Environmental Quality Compliance and Enforcement  
 Horizon Center, PO Box 407  
 Robbinsville, NJ 08625-0407

- (2) The owner or operator shall have the system repaired and retested in accordance with a compliance plan approved by the Department;

- 2. Upon the request of the Department, the owner or operator shall demonstrate the efficiency of the facility's vapor control system in reducing the total applicable VOC emissions released from the facility into the outdoor atmosphere, as required pursuant to (d)1i(1) and/or (e)1i above, in accordance with test procedures approved by the Department; and
- 3. A record of the performance of each of the tests, and of the results obtained, shall be maintained in accordance with (s) below.

<b>Table 3A Methods for Testing Performance Of Gasoline Dispensing Facilities</b>			
<b><u>Test</u></b>	<b><u>Applicability</u></b>	<b><u>Required Testing Schedule</u></b>	<b><u>Test Method (CARB Citation)</u></b>

Static Pressure Performance Test	Applies to any facility required to have a vapor control system under (e) above	Within 90 days from the date of installation of the system and at least once in every 12 month period thereafter	CARB TP-201.3, including all subsequent revisions thereto, which are incorporated herein by reference except that the vapor control system shall be tested at two inches of water column.
Pressure Vacuum Valve Test	Applies to any facility required to have a vapor control system under (e) above	Within 90 days from the date of installation of the system and at least once in every 12 month period thereafter	CARB TP-201.2B, including all subsequent revisions thereto, which are incorporated herein by reference
Dynamic Backpressure Performance Test	Applies to any facility required to have a vapor control system under (e) above	Within 90 days from the date of installation of the system and at least once in every 36 month period thereafter	CARB TP-201.4, including all subsequent revisions thereto, which are incorporated herein by reference
Air to Liquid Volume Ratio Test	Applies to any facility with a vacuum assist vapor control system under (e) above	Within 90 days from the date of installation of the system and at least once in every 12 month period thereafter	CARB TP-201.5, including all subsequent revisions thereto, which are incorporated herein by reference

- (j) No person shall cause, suffer, allow, or permit a delivery vessel having a maximum capacity of 2,000 gallons (7,570 liters) or greater, except if it is a railroad tank car or marine tank vessel, to contain gasoline unless:
1. The delivery vessel sustains a pressure change of less than three inches of water (six millimeters of mercury) in five minutes when pressurized to 18 inches of water (34 millimeters of mercury) and evacuated to six inches of water (11 millimeters of mercury);
  2. Pressure and vacuum tests are performed on the delivery vessel at least once in every 12-month period, in accordance with test procedures specified by the Department, to determine whether or not the requirements of (j)1 above are met;
  3. A Certification is affixed to the delivery vessel in a prominent location, which indicates the identification number of the vessel and the date the vessel last passed the pressure and vacuum tests; and
  4. A record of certification is kept with the delivery vessel at all times and made available upon request by the Department. The record of certification shall include the name and address of the delivery vessel owner; the delivery vessel identification number;

and, for each test performed, the test method used, the testing location, date of test, tester's name and signature, and test results.

- (k) No person shall cause, suffer, allow, or permit a transfer of gasoline, to or from a delivery vessel, if the transfer is subject to the provisions of (d), above, and (l) or (m) below, and if the delivery vessel being loaded is under a pressure in excess of 18 inches of water (34 millimeters of mercury) gauge or the delivery vessel being unloaded is under a vacuum in excess of six inches of water (11 millimeters of mercury) gauge.
- (l) Except as provided in (p) below, no person shall cause, suffer, allow, or permit the transport or transfer of gasoline in a delivery vessel having a maximum capacity of 2,000 gallons (7,570 liters) or greater unless such vessel is vapor-tight at all times while containing any VOC except during:
  - 1. Emergency conditions;
  - 2. Gauging; or
  - 3. Venting through a vapor control system approved by the Department.
- (m) No person shall cause, suffer, allow, or permit the transfer of gasoline or any other substance into a gasoline vapor laden delivery vessel having a maximum capacity of 2,000 gallons (7,570 liters) or greater, unless:
  - 1. The transfer operation is conducted at a gasoline loading facility equipped with a vapor control system which meets the requirement of (n) below, the vapor control system is properly connected to the delivery vessel, and the vapor control system is properly operated throughout the duration of the transfer operation; or
  - 2. The delivery vessel is being used for the purpose of holding gasoline from a storage tank during a period in which the storage tank is undergoing repair or maintenance and the duration of this use is limited to less than one month.
- (n) No person shall cause, suffer, allow, or permit the transfer or loading of gasoline or any other substance into any gasoline vapor laden delivery vessel except at a gasoline loading facility that is equipped and operating with a vapor control system in accordance with the following provisions:
  - 1. At a facility where the daily loading rate does not exceed 15,000 gallons (56,775 liters) of gasoline per day, as determined in accordance with (n) 3 below, the facility shall be equipped and operating with a vapor balance system or some other vapor control system of equal or higher efficiency. Such vapor balance system shall not have a vent that is open to the atmosphere during transfer and shall not return the vapors to a tank equipped with a floating roof;
  - 2. At a facility where the daily loading rate exceeds, or may exceed, 15,000 gallons (56,775 liters) of gasoline per day, as determined in accordance with (n)3 below, the facility shall be equipped and operating with a vapor control system which:
    - i. Prevents applicable VOC emissions to the outdoor atmosphere from exceeding the maximum allowable emissions as determined from Table 3B below; or
    - ii. Reduces the total applicable VOC emissions to the outdoor atmosphere by no less than 90 percent by weight; and

3. For the purposes of (n)1 and 2 above, a gasoline loading facility's daily loading rate shall be its average daily rate during the month in which the facility had its highest monthly throughput in the last 12 months of operation.

TABLE 3B  
EMISSION STANDARDS FOR GASOLINE LOADING FACILITIES LOADING MORE THAN 15,000 GALLONS (56,775 LITERS) PER DAY

<b>Concentration of Applicable VOC in Gas Displaced from Delivery Vessel, Volume Percent</b>		<b>Maximum Allowable Emissions per Volume Unit Loaded</b>	
<b>Greater Than</b>	<b>But Not Greater Than</b>	<b>Pounds per Ten Thousand Gallons</b>	<b>Milligrams per Liter</b>
50	--	6.7	80
40	50	5.8	70
30	40	5.0	60
20	30	4.2	50
15	20	3.8	45
0	15	3.3	40

- (o) Except as provided in (p) below, no person shall cause, suffer, allow, or permit any transfer of gasoline, subject to the provisions of (d), (e), (m), or (n) above, if:
  1. The delivery vessel being loaded or unloaded, or the vapor control system or other equipment serving the transfer operation, has:
    - i. A vapor leak which results in a concentration of applicable VOC greater than or equal to 100 percent of the lower explosive limit of propane, when measured at a distance of 1.0 inch (2.54 centimeters) or less from the location of the leak; or
    - ii. A liquid leak;
  2. Any component of the delivery vessel designed for preventing the release of gasoline vapors is not installed and operating as designed; or
  3. Commencing or continuing the transfer would result in a liquid gasoline spill.
- (p) A delivery vessel subject to the provisions of (j) above that is found to be in violation of (l) or (o) above shall be:
  1. Repaired and a new certification, in accordance with (j)3 and 4 above, shall be affixed to the delivery vessel within 15 days; or
  2. Removed from service until (l) and (o) above are met in full.
- (q) No person shall cause, suffer, allow, or permit the transfer of gasoline at a gasoline loading facility, into or from a delivery vessel, or at a gasoline dispensing facility, which is required to have a vapor control system pursuant to (d)1i, (e)1i, (m), or (n) above unless:

1. The vapor control system is designed to meet the applicable requirements in (d), (e), (m), or (n) above;
  2. All hoses, piping, connections, fittings and manholes serving the vapor control system are vapor-tight and free of liquid leaks, except when gauging or sampling is being performed;
  3. The vapor control system, including any component thereof, is maintained in proper operating condition and kept free of defects that could impair the effectiveness of the system;
  4. The vapor control system is constructed out of materials that will not become degraded when exposed to any grade of gasoline which may be stored, transferred, and/or dispensed; and
  5. The vapor control system is operated properly whenever gasoline is stored, transferred, and/or dispensed.
- (r) (Reserved.)
- (s) The owner or operator of a gasoline dispensing facility shall maintain the following records at the facility:
1. A record of the monthly throughput of gasoline;
  2. If the facility is required to test a vapor control system pursuant to (i) above:
    - i. Documentation of the performance of each test required pursuant to (i) above, including the date, name of the testing company and the test method used; and
    - ii. A record of the results of each test performed pursuant to (i) above.
- (t) The owner or operator of a gasoline loading facility with a vapor control system pursuant to (n) above shall maintain the following records at the facility:
1. On a daily basis, record the total quantity, in gallons or liters, loaded into delivery vessels at the facility;
  2. On a continuous basis or at a frequency approved by the Department in writing:
    - i. For any thermal oxidizer used to control the emission of applicable VOCs, record the operating temperature at the exit of the combustion chamber and the carbon monoxide concentration in the flue gas emitted to the outdoor atmosphere; or
    - ii. For a vapor control system using carbon or other adsorptive material, record the concentration of the total applicable VOCs in the flue gas emitted to the outdoor atmosphere; or, provided that the owner or operator confirms daily that the automatic switching between carbon beds is functioning in accordance with permit conditions, record the date of carbon bed replacement; and
  3. Upon request of the Department and at a frequency specified by the Department, record any other operating parameter relevant to the prevention or control of air contaminant emissions from the facility.

**7:27-16.4 VOC transfer operations, other than gasoline**

- (a) On and after July 26, 1994, the provisions of this section shall apply to any transfer of an applicable VOC, except:
1. The transfer of gasoline. Gasoline transfer operations are subject to the provisions of N.J.A.C. 7:27-16.3; and
  2. The loading of applicable VOC as cargo into a marine tank vessel. Marine tank vessel loading operations occurring in New Jersey or in New Jersey's coastal waters are subject to the provisions of N.J.A.C. 7:27-16.5.
- (b) No person shall cause, suffer, allow, or permit the transfer of any applicable VOC into any receiving vessel having a maximum capacity of 2,000 gallons (7,570 liters) or greater unless such transfer is made through a submerged fill pipe or by other means approved by the Department as being equally or more effective in preventing the emission of any VOC into the outdoor atmosphere during transfer. Such submerged fill pipe shall be permanently affixed to any underground storage tank of 2,000 gallons (7,570 liters) or greater total capacity into which the VOC is transferred. This subsection shall not apply to a transfer to a manufacturing process vessel installed before December 17, 1979.
- (c) On and after May 31, 1995, no person shall cause, suffer, allow, or permit the transfer of any applicable VOC from a delivery vessel into any stationary storage tank having a maximum capacity of 2,000 gallons (7,570 liters) or greater and having a total calculated annual emission rate over 1,000 pounds of applicable VOC as determined pursuant to (d) below unless the storage tank is equipped with and operating one of the following control apparatus:
1. A vapor control apparatus which reduces by no less than 90 percent the concentration of applicable VOC in the air-vapor mixture displaced during the transfer of applicable VOC;
  2. A floating roof; or
  3. A vapor balance system with:
    - i. All atmospheric vents positively closed during transfer;
    - ii. A conservation vent adjusted to remain closed during transfer; or
    - iii. A hole of 1/4 inch (6.4 millimeters) or less in diameter in the cap on the atmospheric vent.
- (d) For the purposes of (c) above, the total calculated annual emission rate for each tank shall be determined in accordance with the following procedure:
1. Calculate the emission factor for each applicable VOC as follows:

$$EF = 0.000024 \times VP \times MW$$

Where:

EF = the emission factor for each applicable VOC being transferred;

VP = the vapor pressure (psia) of each applicable VOC. If the VOC is heated, this term is the vapor pressure of the VOC at the temperature at the point of transfer; if the VOC is not heated, this term is the vapor pressure of the VOC at standard conditions;

MW = the molecular weight of the applicable VOC; and

0.000024 = a constant to convert units;

2. Determine the calculated annual emission rate by multiplying each emission factor calculated in (d)1 above, by the annual quantity, in gallons, of each applicable VOC transferred from delivery vessels into the tank. Sum the calculated annual emission rates for each applicable VOC transferred. For a storage tank for which a permit is in effect, the annual quantity of each applicable VOC transferred shall be considered to be the maximum quantity allowed by the permit. For a storage tank for which no permit is in effect, the annual quantity of applicable VOC transferred shall be the quantity that was transferred during the previous calendar year (from January 1 through December 31); and
  3. Compare the total calculated annual emission rate to 1,000 pounds. If the total calculated annual emission rate for the tank is less than 1,000 pounds, this section does not require the use of any control apparatus, except as specified in (b) above. Otherwise, one of the control apparatus described in (c) above must be used.
- (e) The provisions of (c) above shall not apply to a storage tank during construction ballast if an applicable VOC is used.
- (f) On and after May 31, 1995, no person shall cause, suffer, allow, or permit the transfer of any applicable VOC into any delivery vessel, except railroad tank cars, from a tank having a maximum capacity of 2,000 gallons (7,570 liters) or greater and having a total calculated annual emission rate over 2,000 pounds of applicable VOC from transfer operations, as determined pursuant to (g) below, unless the transfer is directly from a tank equipped with a floating roof or unless any such delivery vessel is connected to one of the following control apparatus:
1. A vapor control apparatus which reduces by no less than 90 percent by weight the total VOC emissions to the outdoor atmosphere; or
  2. A vapor balance system with all atmospheric vents positively closed during transfer. Such vapor balance system shall not return the vapors to any tank equipped with a floating roof.
- (g) For the purposes of (f) above, the total calculated annual emission rate of applicable VOC transferred into delivery vessels from each tank shall be determined in accordance with the following procedure:
1. Calculate the emission factor for each applicable VOC transferred from the storage tank to regulated delivery vessels as follows:

$$EF = 0.000024 \times VP \times MW$$

Where:

EF = the emission factor for each applicable VOC being transferred;

VP = the vapor pressure (psia) of each applicable VOC. If the VOC is heated, this term is the vapor pressure of the VOC at the temperature at the point of transfer; if the VOC is not heated, this term is the vapor pressure of the VOC at standard conditions;

MW = the molecular weight of the applicable VOC; and

0.000024 = a constant to convert units;

2. Determine the calculated annual emission rate by multiplying each emission factor calculated in (g)1 above, by the annual quantity (in gallons) of each applicable VOC transferred into delivery vessels at the regulated facility. Sum the calculated annual emission rates for each applicable VOC transferred. For a facility for which a permit is in effect, the annual quantity of each applicable VOC transferred shall be considered to be the maximum quantity allowed by the permit. For a facility for which no permit is in effect, the annual quantity of applicable VOC transferred shall be the quantity that was transferred during the previous calendar year (from January 1 through December 31); and
  3. Compare the total calculated annual uncontrolled emission rate resulting from the total transfers from the storage tank to 2,000 pounds. If the calculated annual emission rate is less than 2,000 pounds, this section does not require the use of any control apparatus, except as specified in (b) above. Otherwise, one of the control apparatus described in (f) above must be used.
- (h) The provisions of (f) above shall not apply to:
1. A delivery vessel used for less than 30 days for the purpose of holding VOC from a storage tank during a period in which the storage tank is undergoing repair or maintenance;
  2. A delivery vessel used in groundwater remediation operations for temporary storage and handling of VOC contaminated groundwater and recovered VOC; and
  3. Vacuum trucks used for equipment clean-out or other clean-up operations.
- (i) On and after May 31, 1995, no person shall cause, suffer, allow, or permit any tank truck having a maximum capacity of 2,000 gallons (7,570 liters) or greater to contain applicable VOC unless such tank truck is certified to comply with DOT regulations concerning inspection and pressure testing, codified at 40 CFR 180.407. A record of DOT certification shall be kept with the delivery vessel at all times.
- (j) On and after May 31, 1995, no person shall cause, suffer, allow, or permit a transfer to or from a tank truck of applicable VOC, which transfer is subject to the provisions of (c) or (f) above, if the tank truck being loaded is under a pressure in excess of 18 inches of water (34 millimeters of mercury) gauge or the tank truck being unloaded is under a vacuum in excess of six inches of water (11 millimeters of mercury) gauge. This provision shall not apply to the loading or unloading of applicable VOC that is typically stored or transferred at elevated pressure, or under vacuum, into or from a delivery vessel that is designed for pressure or vacuum service.
- (k) No person shall cause, suffer, allow, or permit any transfer of applicable VOC, which transfer is subject to the provisions of (c) or (f) above, if any components of the delivery vessel designed for preventing the release of applicable VOC vapors are not installed and operating as designed. Any loading or unloading transfer operations must cease immediately if:



1. On and after May 31, 1995, the delivery vessel being loaded or unloaded, any control apparatus or other equipment serving the transfer operation has a leak that:
    - i. Results in a concentration of VOC greater than or equal to 100 percent of the lower explosive limit of propane when measured at a distance within 1.0 inch (2.54 centimeters) of the source; or
    - ii. Is a liquid leak; or
  2. The transfer results or would result in a liquid leak of applicable VOC.
- (l) On and after May 31, 1995, no person shall cause, suffer, allow, or permit the transport or storage of any applicable VOC in a delivery vessel having a maximum capacity of 2,000 gallons (7,570 liters) or greater unless such vessel, while containing any applicable VOC, is vapor-tight at all times, except during:
1. Sample collection;
  2. Emergency conditions;
  3. Gauging; or
  4. Venting through a vapor control apparatus approved by the Department.
- (m) After a leaking tank truck, subject to the provisions of (i), (k) or (l) above is repaired, the owner or operator shall test the delivery vessel before it is loaded with applicable VOC. A record of the repair and test shall be maintained with the delivery vessel for one year.
- (n) Any owner or operator of a facility with transfer operations subject to the provisions of (c) or (f) above shall comply with the following schedule:
1. By October 26, 1994, submit to the Chief, Bureau of New Source Review, Environmental Regulation Program, Department of Environmental Protection, CN 027, Trenton, New Jersey 08625-0027, a complete application for each permit required, pursuant to N.J.A.C. 7:27-8, to achieve compliance with (c) or (f) above; and
  2. By May 31, 1995, achieve compliance with (c) or (f) above and maintain compliance with this section thereafter.
- (o) The owner or operator of any VOC loading facility subject to (f) above shall maintain the following records:
1. On a daily basis, record the name and total quantity of each applicable VOC, in gallons or liters, loaded into delivery vessels at the facility;
  2. On a continuous basis or at a frequency approved by the Department in writing:
    - i. For any thermal oxidizer used to control the emission of VOCs, record the operating temperature at the exit of the combustion chamber and the carbon monoxide concentration in the flue gas emitted to the outdoor atmosphere; or
    - ii. For any control apparatus using carbon or other adsorptive material, record the concentration of the total VOC in the flue gas emitted to the outdoor atmosphere or record the date of carbon bed replacement and, on a daily basis, check the functioning of the automatic system for switching between carbon beds; and

3. Upon request of the Department and at a frequency specified by the Department, record any other operating parameter relevant to the prevention or control of the emission of air contaminants from the facility.
- (p) Upon the request of the Department, any owner or operator utilizing a vapor control system pursuant to (c)1 or (f) above shall demonstrate to the satisfaction of the Department achievement of the required control efficiency through testing performed when the ambient air temperature is 70 degrees Fahrenheit (21 degrees Celsius) or greater, unless the Department, in writing, approves the performance tests at a lower ambient temperature.
- (q) After receipt of a written request from an owner or operator for an extension of the deadline set forth in (n)1 above, the Department may authorize a 60-day renewable extension upon showing of good cause. Such extension may be renewed by the Department upon the written request of the owner or operator. Approval of such an extension shall not constitute approval of extension of the May 31, 1995 deadline established in (n)2 above. Written requests for the extension of a deadline submitted pursuant to this subsection shall be addressed to:

Assistant Director, Air and Environmental Quality Enforcement  
Division of Enforcement Field Operations  
Department of Environmental Protection  
PO Box 422  
401 East State Street, 4th Floor  
Trenton, New Jersey 08625-0422

#### **7:27-16.5 Marine tank vessel loading and ballasting operations**

- (a) The provisions of this section apply to the following marine tank vessel operations conducted at marine terminals in New Jersey:
  1. The transfer of applicable VOC, including gasoline, as cargo into a marine tank vessel; and
  2. Ballasting conducted in a marine tank vessel, unless the ballasting is conducted in dedicated ballast tanks that never contain anything other than water.
- (b) The owner or operator of any marine terminal having an annual throughput of 6,000,000 gallons (22,710,000 liters) or greater for loading gasoline as cargo into marine tank vessels or having a daily throughput, between May 1 and September 30, of 60,000 gallons or greater for loading gasoline as cargo into marine tank vessels shall install and operate a control apparatus, which reduces the total VOC emissions to the outdoor atmosphere resulting from gasoline transfers at the facility by no less than 95 percent by weight.
- (c) The owner or operator of any marine terminal that meets the following criteria shall install and operate a control apparatus, which reduces the total VOC emissions to the outdoor atmosphere resulting from applicable VOC transfers at the facility by no less than 95 percent by weight, or shall by October 26, 1994, submit to the Department a written alternative emission control plan in accordance with N.J.A.C. 7:27-16.17 that shall be implemented in accordance with a schedule in the plan approved in accordance with N.J.A.C. 7:27-16.17:
  1. The marine terminal is a major VOC facility;

2. A transfer of some applicable VOC that is not gasoline is conducted at the marine terminal; and
  3. Any of the source operations at the terminal which include the transfer of some applicable VOC that is not gasoline has the potential to emit 10 tons per year or more of VOC.
- (d) Effective on July 26, 1994, the Department shall not approve an application for a permit for equipment or control apparatus, required pursuant to (b) or (c) above, unless:
1. The system has been designed to collect and control the emissions of applicable VOC resulting from ballasting; or
  2. The potential to emit VOC from ballasting is limited to less than two pounds of VOC per 1,000 barrels of ballast transferred.
- (e) Effective on July 26, 1994, if a marine tank vessel and marine terminal is equipped with a control apparatus, no person shall cause, suffer, allow, or permit ballasting to be conducted on a marine tank vessel at a marine terminal, unless:
1. The ballasting is conducted in dedicated ballast tanks that only use water;
  2. The control apparatus is used during ballasting; or
  3. The potential to emit VOC from ballasting is less than two pounds of VOC per 1,000 barrels of ballast transferred.
- (f) Effective on July 26, 1994, no person subject to the provision of (b) above, and effective May 31, 1995, no person subject to (c) above shall cause, suffer, allow, or permit any transfer of any applicable VOC, or ballasting if:
1. The delivery vessel being loaded, any control apparatus or other equipment serving the transfer operation has a leak that:
    - i. Results in a concentration of VOC greater than or equal to 100 percent of the lower explosive limit of propane when measured at a distance of 1.0 inch (2.54 centimeters) or less from the source; or
    - ii. Is a liquid leak of applicable VOC;
  2. Any component of the marine tank vessel or any control apparatus serving the source operation is not installed and operating as designed; or
  3. The transfer results or would result in a liquid VOC spill.
- (g) Monitoring for gaseous leaks of VOC shall be conducted according to EPA's Reference Method 21 (40 CFR-Part 60-Appendix A), incorporated herein by reference, or any other equivalent test method approved in advance in writing by the Department and acceptable to EPA.
- (h) Any testing to determine VOC emissions during the transfer of VOC to a marine tank vessel, conducted in order to determine compliance with this section, shall be performed for at least 60 minutes during the transfer of the last 50 percent of total liquid cargo. For a transfer operation for which the transfer of the last 50 percent of the total liquid cargo is less than a 60 minute duration, the testing shall be performed during the transfer of the entire last 50 percent of the total liquid cargo.

- (i) Any tests conducted pursuant to this section to determine emissions of VOC shall be carried out in accordance with:
  - 1. New Jersey Air Test Method 3 (N.J.A.C. 7:27B-3);
  - 2. EPA's Reference Method 25 or 25(a) (40 CFR-Part 60-Appendix A); or
  - 3. Any other equivalent test method approved in advance in writing by the Department and acceptable to EPA.
  
- (j) Effective on July 26, 1994, the owner or operator of a marine terminal subject to (b) or (c) above shall maintain at the marine terminal records sufficient to demonstrate compliance with this section. Any records required by this section shall be made available to the Department upon request and shall be maintained for five years. For each transfer of gasoline or other applicable VOC to the marine tank vessel and for performance of ballasting on a marine tank vessel at the marine terminal, the records shall include the following information:
  - 1. The company name and address of the marine terminal;
  - 2. The date;
  - 3. The name and registry of the marine tank vessel;
  - 4. For any transfer operation, the type of VOC and the quantity, in gallons or liters, loaded into the marine tank vessel;
  - 5. The prior cargo carried by the marine tank vessel and the condition (that is, cleaned, crude oil washed, gas freed, etc.) of the cargo tanks on the marine tank vessel prior to their being loaded or ballasted; and
  - 6. For ballasting, the amount of ballast water or other liquid added to ballast tanks which are unsegregated and which may contain VOC vapor.
  
- (k) It is an affirmative defense to liability for a violation of any of the provisions of this section that compliance would have any of the following effects:
  - 1. Require any act or omission that would be in violation of any statute or regulation over which the United States Coast Guard has jurisdiction; or
  - 2. Prevent an act that was necessary to secure the safety of a vessel or the safety of the passengers or crew.

**7:27-16.6 Open top tanks and solvent cleaning operations**

- (a) This section shall apply to open top tanks and surface cleaners which contain VOC and to solvent cleaning operations, except that:
  - 1. The provisions of (b) through (i) below shall not apply on and after June 29, 2004; and
  - 2. The provisions of (j) through (m) shall not apply until June 29, 2004.

- (b) No person shall cause, suffer, allow, or permit the use of any VOC in an unheated or heated open top tank unless:
  - 1. The tank is covered by a lid which protects the VOC vapors from drafts and diffusion when the tank is not in active use;
  - 2. The tank is an open top tank used solely for the application of electrophoretic dip prime coatings to automobiles and light duty trucks; or
  - 3. The tank is an open top tank used in a waste water treatment system, and the VOC emitted from the tank does not exceed a concentration of 5,000 parts per million by volume measured at any point above the liquid surface at the height of the tank lip.
  
- (c) No person shall cause, suffer, allow, or permit the use of any VOC in an unheated open top surface cleaner having a top opening of more than six square feet (0.56 square meters) but not more than 25 square feet (2.3 square meters) unless such cleaner:
  - 1. Has a visible high-level liquid mark which shall not be exceeded by the contained VOC;
  - 2. Is equipped with a rack or mechanism for ensuring that all of the draining liquid VOC returns into the surface cleaner VOC bath;
  - 3. Is devoid of any flushing wand which produces any VOC droplets or mist or which delivers a stream of any VOC under a line pressure in excess of 15 pounds per square inch gauge (776 millimeters of mercury gauge);
  - 4. Is devoid of any agitating system which causes splashing of the VOC; and
  - 5. Has a freeboard ratio of 0.5 or greater.
  
- (d) No person shall cause, suffer, allow, or permit the use of any VOC in an unheated open top surface cleaner having a top opening of more than 25 square feet (2.3 square meters) unless such cleaner:
  - 1. Has a visible high-level liquid mark which shall not be exceeded by the contained VOC;
  - 2. Is equipped with a rack or mechanism for ensuring that all of the draining liquid VOC returns into the surface cleaner VOC bath;
  - 3. Is devoid of any flushing wand which produces any VOC droplets or mist or which delivers a stream of any VOC under a line pressure in excess of 15 pounds per square inch gauge (776 millimeters of mercury gauge);
  - 4. Is devoid of any agitating system which causes splashing of the VOC; and
  - 5. Blocks drafts from contact with VOC vapors by:
    - i. Having a freeboard ratio of 0.75 or greater; or
    - ii. Having a freeboard ratio of 0.5 or greater, and being separated from other activities, and from open windows and doors by means of walls or screens.
  
- (e) No person shall cause, suffer, allow, or permit the use of any VOC in a heated open top tank which is operated at a temperature lower than the boiling point of such VOC unless such tank:

1. Has a visible high-level liquid mark which shall not be exceeded by the contained VOC;
  2. Is devoid of any agitating system which causes splashing of the VOC;
  3. Is devoid of any flushing wand which produces any VOC droplets or mist or which delivers a stream of any VOC under line pressure in excess of 15 pounds per square inch gauge (776 millimeters of mercury gauge);
  4. Blocks drafts from contact with VOC vapors by:
    - i. Having a freeboard ratio of 0.75 or greater; or
    - ii. Having a freeboard ratio of 0.5 or greater, and being separated from other activities, and from open windows and doors by means of walls or screens; and
  5. Has a thermostat or approved equivalent which automatically maintains the VOC temperature below the boiling point.
- (f) No person shall cause, suffer, allow, or permit the use of any VOC in an open top vapor surface cleaner unless such cleaner:
1. Has a visible high-level liquid mark which shall not be exceeded by the contained liquid VOC;
  2. Is equipped with a rack or mechanism for ensuring that all of the draining liquid VOC returns into the surface cleaner VOC bath;
  3. Is devoid of any flushing wand which produces any VOC droplets or mist or which delivers a stream of any VOC under a line pressure in excess of 15 pounds per square inch gauge (776 millimeters of mercury gauge);
  4. Is devoid of any agitating system which causes splashing of the VOC;
  5. Blocks drafts from contact with VOC vapors by:
    - i. Having a freeboard ratio of 0.75 or greater; or
    - ii. Having a freeboard ratio of 0.5 or greater, and being separated from other activities, and from open windows and doors by means of walls or screens;
  6. Has a visible high-level vapor mark which shall not be exceeded by the VOC;
  7. Is free from the influence of any local exhaust ventilation system unless such ventilation system collects at least 80 percent by volume of the VOC vapors leaving the cleaner, and reduces the vapors collected by at least 85 percent by volume;
  8. Is free from the influence of any positive pressure source located within 20 feet (6.1 meters) of the tank rim unless the cleaner is equipped with and operates a means of collecting at least 80 percent by volume of the VOC vapors leaving the cleaner, and reduces the vapors collected by at least 85 percent by volume;
  9. Is operated with a condenser having heat removal capacity equal to or greater than the heat input rate into the liquid VOC bath;

10. Is equipped with a device which automatically shuts off the heat input to the VOC if the temperature above the condensing surfaces or the temperature of the condensate exceeds the manufacturer's specifications; and
  11. Is equipped with a freeboard chiller through which circulates a cooling fluid having a temperature no higher than 40 degrees F (4.4 degrees C) at any point in the chiller, or with other apparatus approved by the Department as being equally or more effective in reducing emissions. Cleaners with top openings no greater than 25 square feet (2.3 square meters) are not subject to this requirement.
- (g) No person shall cause, suffer, allow, or permit the use of any VOC in an unheated conveyORIZED surface cleaner unless such cleaner:
1. Has a visible high-level liquid mark which shall not be exceeded by the contained VOC;
  2. Is devoid of any flushing wand which produces any VOC droplets or mist or which delivers a stream of any VOC under a line pressure in excess of 15 pounds per square inch gauge (776 millimeters of mercury gauge);
  3. Is devoid of any agitating system which causes splashing of the VOC;
  4. Is protected from drafts when not in active use by the installation of covers over the conveyor inlet and conveyor outlet ports and over any other openings;
  5. Is protected from drafts when in active use by the installation of silhouette cutouts or hanging flaps to minimize the effective openings around the conveyor inlet and conveyor outlet ports; and
  6. Is equipped with a vapor control system which reduces the total emissions of VOC from the cleaner by at least 85 percent by volume. Cleaners installed before December 17, 1979, are not subject to this requirement.
- (h) No person shall cause, suffer, allow, or permit the use of any VOC in a conveyORIZED heated surface cleaner which is operated at a temperature lower than the boiling point of such VOC, unless such cleaner:
1. Has a visible high-level liquid mark which shall not be exceeded by the contained VOC;
  2. Is devoid of any flushing wand which produces any VOC droplets or mist or which delivers a stream of any VOC under a line pressure in excess of 15 pounds per square inch gauge (776 millimeters of mercury gauge);
  3. Is devoid of any agitating system which causes splashing of the VOC;
  4. Has a thermostat or approved equivalent which automatically maintains the VOC temperature below the boiling point;
  5. Is protected from drafts when not in active use by the installation of covers over the conveyor inlet and conveyor outlet ports and over any other openings;
  6. Is protected from drafts when in active use by the installation of silhouette cutouts or hanging flaps to minimize the effective openings around the conveyor inlet and conveyor outlet ports; and

7. Is equipped with a vapor control system by February 1, 1987, which reduces the total VOC emissions from the cleaner by at least 85 percent by volume.
- (i) No person shall cause, suffer, allow, or permit the use of any VOC in a conveyORIZED vapor surface cleaner unless such cleaner:
1. Has a visible high-level liquid mark which shall not be exceeded by the contained liquid VOC;
  2. Is devoid of any flushing wand which produces any VOC droplets or mist or which delivers a stream of any VOC under a line pressure in excess of 15 pounds per square inch gauge (776 millimeters of mercury gauge);
  3. Is devoid of any agitating system which causes splashing of the VOC;
  4. Is operated with a condenser having heat removal capacity equal to or greater than the heat input rate into the liquid VOC bath;
  5. Is equipped with a device which automatically shuts off the heat input to the VOC if the temperature above the condensing surfaces or the temperature of the condensate exceeds the manufacturer's specifications;
  6. Is protected from drafts when not in active use by the installation of covers over the conveyor inlet and conveyor outlet ports and over any other openings;
  7. Is protected from drafts when in active use by the installation of silhouette cutouts or hanging flaps to minimize the effective openings around the conveyor inlet and conveyor outlet ports; and
  8. Is equipped with:
    - i. A freeboard chiller through which circulates a cooling fluid having a temperature no higher than 40 degrees F (4.4 degrees C) at any point in the chiller; or
    - ii. A vapor control system which reduces the total VOC emissions from the cleaner by at least 85 percent by volume.
- (j) The following provisions shall apply to a cold cleaning machine, that uses two gallons or more of solvents containing greater than five percent VOC content by weight for the cleaning of metal parts, and to any heated cleaning machine:
1. No person shall add solvent to a cold cleaning machine or a heated cleaning machine, or cause, suffer, allow, or permit the machine to be operated, unless the following requirements are met:
    - i. If the machine is an immersion cold cleaning machine or heated cleaning machine, it shall have:
      - (1) A freeboard ratio of 0.75 or greater; and
      - (2) A visible fill line and a high level liquid mark;



- ii. The machine shall have: a permanent, conspicuous label placed in a prominent location on the machine setting forth the applicable provisions of the operating requirements in paragraph (j)2 below; and
  - iii. The machine shall be equipped with:
    - (1) A tightly fitting working-mode cover that completely covers the machine's opening and that shall be kept closed at all times except when parts are being placed into or being removed from the machine or when solvent is being added or removed. For a remote reservoir cold cleaning machine which drains directly into the solvent storage reservoir, a perforated drain with a diameter of not more than six inches shall constitute an acceptable cover; and
    - (2) If the machine is a heated cleaning machine, a thermostat;
2. A person shall operate a cold cleaning machine or a heated cleaning machine in accordance with the following procedures:
- i. The solvent level in the machine shall not exceed the fill line when there are no parts in the machine for cleaning and shall not exceed the high level liquid mark during cleaning operations;
  - ii. Flushing of parts with a solvent spray, using a spray head attached to a flexible hose or other flushing device, shall be performed only within the freeboard area of the machine. The solvent spray shall be a continuous fluid stream, not an atomized or shower spray, and shall be under a pressure that does not exceed ten pounds per square inch gauge;
  - iii. Parts being cleaned shall be drained for 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 into the machine;
  - iv. When the machine's cover is open, the machine shall not be exposed to drafts greater than 40 meters per minute (132 feet per minute), as measured between one and two meters (between 3.3 and 6.6 feet) upwind and at the same elevation as the tank lip;
  - v. Sponges, fabric, leather, paper products and other absorbent materials shall not be cleaned in the machine;
  - vi. When a pump-agitated solvent bath is used, the agitator shall be operated to produce a rolling motion of the solvent with no observable splashing of solvent against the tank walls or the parts being cleaned. Air agitated solvent baths may not be used;
  - vii. Spills during solvent transfer and use of the machine shall be cleaned up immediately, and the wipe rags or other sorbent material used shall be immediately stored in covered containers for disposal or recycling;
  - viii. Waste solvent shall be collected and stored in a closed container. The closed container may contain a device that allows pressure relief, provided that it does not allow liquid solvent to drain from the container;

- ix. Work area fans shall be located and positioned so that they do not blow across the opening of the degreaser unit; and
  - x. If the machine is a heated cleaning machine, the solvent shall be maintained at a temperature that is below its boiling point;
3. A person shall not use, in a cold cleaning machine or a heated cleaning machine, any solvent that has a vapor pressure of one millimeter of mercury or greater, measured at 20 degrees centigrade (68 degrees Fahrenheit); and
  4. A person who owns or operates a cold cleaning machine or a heated cleaning machine shall maintain, for not less than two years after the date of purchase of solvent for use in the machine, the information specified below and shall, upon the request of the Department or its representative, provide the information to the Department:
    - i. The name and address of the person selling the solvent. An invoice, bill of sale, or a certificate that corresponds to a number of sales, if it has the seller's name and address on it, may be used to satisfy this requirement;
    - ii. A list of VOC(s) and their concentration information in the solvent;
    - iii. Information about each VOC listed pursuant ii above. A Material Safety Data Sheet (MSDS) may be used to satisfy this requirement;
    - iv. The solvents product number assigned by the manufacturer; and
    - v. The vapor pressure of the solvent measured in millimeters of mercury at 20 degrees centigrade (68 degrees Fahrenheit).
- (k) The following provisions apply to a batch vapor cleaning machine:
1. No person shall add solvent to a batch vapor cleaning machine or cause, suffer, allow or permit the machine to be operated, unless the following requirements are met:
    - i. The machine shall have a freeboard ratio of 0.75 or greater;
    - ii. The machine shall have a permanent, conspicuous label placed in a prominent location on the machine setting forth the applicable provisions of the operating requirements in (k)4 below;
    - iii. The machine shall be equipped with:
      - (1) Unless the machine is fully enclosed, a tightly fitting working-mode cover. The cover shall be kept closed at all times except when parts are being placed into or being removed from the machine or when solvent is being added or removed. The cover shall:
        - (A) Completely cover the machine's opening;
        - (B) Be free of cracks, holes and other defects;
        - (C) Be able to be readily opened and closed without disturbing the vapor zone. If the opening is greater than ten square feet, the

- cover shall be opened and closed by a powered mechanism;  
and
  - (D) If the machine has a lip exhaust, extend below the level of the lip exhaust;
  - (2) A safety switch (thermostat and condenser flow switch) which shuts off the sump heat if the coolant is not circulating;
  - (3) A control switch which shuts off the spray pump if vapor is not present in the vapor section in the machine;
  - (4) A primary condenser; and
  - (5) A device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils or if the vapor level in the machine rises above the height of the primary condenser;
- iv. The machine shall have an automated parts handling system which moves the parts and/or parts baskets at a speed of 11 feet (3.4 meters) per minute or less when the parts are entering or exiting the vapor zone. If the parts basket and parts being cleaned occupy more than 50 percent of the solvent/air interface area, the speed of the parts basket or parts shall not exceed three feet ( one meter) per minute;
- v. If the machine has a lip exhaust, it shall be designed and operated so that:
- (1) The collected solvent vapors pass through a properly operated and maintained carbon adsorber; and
  - (2) The concentration of VOC in the effluent from the adsorber does not exceed 100 parts per million;
- vi. The machine shall be free from the influence of any local exhaust ventilation system unless the ventilation system is equipped with a control device that:
- (1) Collects at least 90 percent by volume of the VOC vapors leaving the machine; and
  - (2) Reduces VOC concentration in the exhaust by at least 95 percent by volume; and
- vii. The machine shall be free from the influence of any positive pressure source located within 20 feet (6.1 meters) of the tank rim unless the machine is equipped with a control device that:
- (1) Collects at least 90 percent by volume of VOC vapors leaving the machine; and
  - (2) Reduces VOC concentration in the exhaust by at least 95 percent by volume;

2. No person shall cause, suffer, allow, or permit a batch vapor cleaning machine with a solvent/air interface area of 13 square feet or less to be operated, unless one of the control options listed in Table 6A below is implemented;

TABLE 6A  
CONTROL OPTIONS FOR BATCH VAPOR CLEANING MACHINES  
WITH A SOLVENT/AIR INTERFACE AREA OF  
13 SQUARE FEET OR LESS

Number of <u>Option</u>	<u>Control Option</u>
1.	A working-mode cover; freeboard ratio of 1.0; and superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine.
2.	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; and a superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine.
3.	A working-mode cover; 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.
4.	Reduced room draft; a freeboard ratio of 1.0 ;and a superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine.
5.	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; and reduced room draft.
6.	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; and a freeboard ratio of 1.0.
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; and to ensure that the dwell time is less than 35 percent of the dwell time determined for the part or parts.
8.	Reduced room draft; sufficient dwell time to ensure that liquid solvent on and in the parts vaporizes within the machine confines or drains back into the machine rather than into the work area; and a freeboard ratio of 1.0.

9.	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; and a carbon adsorber which reduces solvent emissions in the exhaust to a level not to exceed 100 parts per million at any time.
10.	A freeboard ratio of 1.0; a superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine; and a carbon adsorber which reduces solvent emissions in the exhaust to a level not to exceed 100 part per million at any time.

3. No person shall cause, suffer, allow, or permit a batch vapor cleaning machine with a solvent/air interface area of greater than 13 square feet to be operated, unless one of the control options listed in Table 6B below is implemented;

TABLE 6B  
CONTROL COMBINATIONS FOR BATCH VAPOR CLEANING MACHINES  
WITH A SOLVENT/AIR INTERFACE AREA GREATER THAN  
13 SQUARE FEET

Number of <u>Option</u>	<u>Control Option</u>
1.	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; a freeboard ratio of 1.0; and a superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine.
2.	Sufficient dwell time to ensure that liquid solvent on and in the parts vaporizes within the machine confines or drains back into the machine rather than into the work area; 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; and reduced room draft. Dwell time shall not be less than 35 percent of the dwell time determined for the part or parts.
3.	A working mode cover; freeboard refrigeration device operated to ensure that the chilled air blanket temperature is no greater than 30 percent of the solvent's boiling point; and a superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine.
4.	Reduced room draft; a freeboard ratio of 1.0; and a superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine.
5.	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; reduced room draft; and a superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine.

6.	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; reduced room draft; and a freeboard ratio of 1.0.
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; a superheated vapor system; and a carbon adsorber which reduces solvent emissions in the exhaust to a level not to exceed 100 parts per million at any time.

4. A person shall operate a batch vapor cleaning machine in accordance with the following procedures:
  - i. During startup of the batch vapor cleaning machine the primary condenser shall be turned on before the sump heater;
  - ii. Flushing or spraying of parts with a solvent spray, using a spray head attached to a flexible hose or other flushing device, shall be performed within the vapor zone of the machine or within a section of the machine that is not exposed to the ambient air. The solvent spray shall be a continuous fluid stream, not an atomized or shower spray, and shall be under a pressure that does not exceed 10 pounds per square inch gauge;
  - iii. Parts being cleaned shall be drained for 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. A superheated vapor system shall be an acceptable alternate technology;
  - iv. When the machine's cover is open, the machine shall not be exposed to drafts greater than 40 meters per minute (132 feet per minute), as measured between one and two meters (between 3.3 and 6.6 feet) upwind and at the same elevation as the tank lip;
  - v. Sponges, fabric leather, paper products and other absorbent materials shall not be cleaned in the machine;
  - vi. Spills during solvent transfer and use of the machine shall be cleaned up immediately or the machine shall be shut down. Wipe rags or other sorbent material used shall be immediately stored in covered containers for disposal or recycling;
  - vii. Waste solvent, still bottoms and sump bottoms shall be collected and stored in closed containers. The closed containers shall contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container;
  - viii. Work area fans shall be located and positioned so that they do not blow across the opening of the machine;

- ix. During shutdown of the machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off;
- x. When solvent is added to or drained from the machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface;
- xi. The working and downtime covers shall be closed at all times except when parts are entering or exiting from the machine, during maintenance of the machine when the solvent has been removed, or during addition of solvent to the machine;
- xii. If a lip exhaust is used on an open top vapor degreaser, the ventilation rate shall not exceed 20 cubic meters per minute per square meter ( $\text{m}^3/\text{min}/\text{m}^2$ ) (that is, 65 cubic feet per minute per square foot ( $\text{ft}^3/\text{min}/\text{ft}^2$ )) of degreaser open area; and
- xiii. The machine shall be maintained as recommended by the manufacturer of the equipment or by using alternate maintenance practices that have been demonstrated to the Department's satisfaction to achieve the same or better results as those recommended by the manufacturer.

(l) The following provisions apply to an in-line vapor cleaning machines:

- 1. No person shall add any VOC containing solvent to an in-line vapor cleaning machine or cause, suffer, allow, or permit the machine to be operated unless the following requirements are met:
  - i. The machine shall have a freeboard ratio of 0.75 or greater;
  - ii. The machine shall have a permanent, conspicuous label placed in a prominent location on the machine setting forth the applicable provisions of the operating requirements in (l)3 below;
  - iii. The machine shall be equipped with:
    - (1) Unless the machine is fully enclosed, a tightly fitting cover that shall be kept closed at all times except for when parts are being placed into or being removed from the machine or when solvent is being added or removed. The cover shall:
      - (A) Completely cover the machine's opening;
      - (B) Be free of cracks, holes and other defects;
      - (C) Be able to be readily opened and closed without disturbing the vapor zone. If the opening is greater than ten square feet, the cover shall be opened and closed by a powered mechanism; and
      - (D) If the machine has a lip exhaust, extend below the level of the lip exhaust;

- (2) A safety switch (thermostat and condenser flow switch) which shuts off the sump heat if the coolant is not circulating;
  - (3) A control switch which shuts off the spray pump if vapor is not present in the vapor section in the machine;
  - (4) A primary condenser; and
  - (5) A device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils or if the vapor level in the machine rises above the height of the primary condenser;
- iv. The machine shall have an automated parts handling system which moves the parts or parts basket at a speed of 11 feet (3.4 meters) per minute or less when the parts are entering or exiting the vapor zone. If the parts basket or parts being cleaned occupy more than 50 percent of the solvent/air interface area, the speed of the parts basket or parts shall not exceed three feet (one meter) per minute;
  - v. If the machine has a lip exhaust, it shall be designed and operated so that:
    - (1) Collected solvent vapors pass through a properly operated and maintained carbon adsorber; and
    - (2) The concentration of VOC in the effluent from the adsorber does not exceed 100 parts per million;
  - vi. The machine shall be protected from drafts, when not in active use, by the installation of covers over the conveyor inlet and conveyor outlet ports and over any other openings; and
  - vii. The machine shall be protected from drafts, when in active use, by the installation of a silhouette cutout or hanging flaps to minimize the effective openings around the conveyor inlet and conveyor outlet parts;
2. No person shall cause, suffer, allow, or permit an in-line vapor cleaning machine to be operated unless one of the control options listed in Table 6C below is implemented:

TABLE 6C

CONTROL OPTIONS FOR IN-LINE VAPOR CLEANING MACHINES

<u>Number of Option</u>	<u>Control Option</u>
1.	A superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine; and a freeboard refrigeration device.
2.	A freeboard refrigeration device; and a carbon adsorber.



3.	A superheated vapor system to heat the parts and evaporate liquid solvent on the parts before they are withdrawn from the cleaning machine; and a carbon adsorber.
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3. A person shall operate an in-line cleaning machine in accordance with the following procedures:
  - i. During startup of the machine the primary condenser shall be turned on before the sump heater;
  - ii. Flushing or spraying of parts with a solvent spray, using a spray head attached to a flexible hose or other flushing device, shall only be performed within the vapor zone of the machine or within a section of the machine that is not exposed to the ambient air. The solvent spray shall be a continuous fluid stream, not an atomized or shower spray, and shall be under a pressure that does not exceed 10 pounds per square inch gauge;
  - iii. Parts being cleaned shall be drained for 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. A superheated vapor system shall be an acceptable alternate technology;
  - iv. When the machine's cover is open, the machine shall not be exposed to drafts greater than 40 meters per minute (132 feet per minute), as measured between one and two meters (between 3.3 and 6.6 feet) upwind and at the same elevation as the tank lip;
  - v. Sponges, fabric, leather, paper products and other absorbent materials shall not be cleaned in the machine;
  - vi. Spills during solvent transfer and use of the machine shall be cleaned up immediately or the machine shall be shut down. Wipe rags or other sorbent material used shall be immediately stored in covered containers for disposal or recycling;
  - vii. 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;
  - viii. Work area fans shall be located and positioned so that they do not blow across the opening of the machine;
  - ix. During shutdown of the machine, the sump heater shall be turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off;
  - x. When solvent is added to or drained from the machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface;
  - xi. The working and downtime covers shall be closed at all times except when parts are entering or exiting from the machine, during maintenance of the

machine when the solvent has been removed, and during addition of solvent to the machine;

- xii. If a lip exhaust is used on an open top vapor degreaser, the ventilation rate shall not exceed 20 cubic meters per minute per square meter ( $\text{m}^3/\text{min}/\text{m}^2$ ) (that is, 65 cubic feet per minute per square foot ( $\text{ft}^3/\text{min}/\text{ft}^2$ )) of degreaser open area;
- xiii. The machine shall be maintained as recommended by the manufacturer of the equipment or by using alternate maintenance practices that have been demonstrated to the Department's satisfaction to achieve the same or better results as those recommended by the manufacturer; and
- xiv. Openings shall be minimized during operation so that entrances and exits silhouette workloads with an average clearance between the parts and the edge of the degreaser opening of less than 10 centimeter (four inches) or less than 10 percent of the width of the opening.

(m) The following provisions shall apply to an airless cleaning machine or air-tight cleaning machine:

- 1. No person shall add solvent to an airless cleaning machine or an air-tight cleaning machine, or cause, suffer, allow, or permit the machine to be operated unless the following requirements are met:
  - i. The machine shall have a permanent, conspicuous label placed in a prominent location on the machine setting forth the applicable provisions of the operating requirements in (m)4 below; and
  - ii. The machine shall have a carbon adsorber that shall:
    - (1) Measure and record the concentration of solvent in the exhaust of the carbon adsorber weekly with a colorimetric detector tube designed to measure a concentration of 100 parts per million (ppm) by volume of solvent to air at an accuracy of  $\pm 25$  parts per million by volume. These measurements and recordings shall be conducted while the solvent cleaning machine is in working mode and venting to the adsorber; and
    - (2) Maintain and operate the machine and adsorber so that emissions from the adsorber exhaust not more than 100 ppm by volume measured while the machine is in the working mode and is venting to the adsorber;
- 2. The owner or operator of an airless cleaning machine or air-tight cleaning machine, shall maintain for each machine a log of all additions and deletions of VOC containing solvent, including the weight of the solvent contained in any activated carbon or other sorbent material used to control emissions from the cleaning machine;
- 3. The owner or operator of the machine shall demonstrate that the monthly emissions from the machine, based on a three-month rolling average, are equal to or less than the allowable limits set forth in Table 6D below or, if the volume of the cleaning machine exceeds 2.95 cubic meters, by the use of the following equation:

$$EL = 330 (\text{vol})^{0.6}$$

Where:

EL= the three-month rolling average monthly emission limit, based on kilograms per/month.

vol= the capacity of machine, given in cubic meters

TABLE 6D  
EMISSION LIMITS FOR CLEANING MACHINES  
WITHOUT A SOLVENT/AIR INTERFACE

<u>Cleaning Capacity (m<sup>3</sup>)</u>	<u>Emission Limit, Based On A 3-Month Rolling Average (kg/month)</u>
0.00	0.0
0.05	55
0.10	83
0.15	106
0.20	126
0.25	144
0.30	160
0.35	176
0.40	190
0.45	204
0.50	218
0.55	231
0.60	243
0.65	255
0.70	266
0.75	278
0.80	289
0.85	299
0.90	310
0.95	320

1.00	330
1.05	340
1.10	349
1.15	359
1.20	368
1.25	377
1.30	386
1.35	395
1.40	404
1.45	412
1.50	421
1.55	429
1.60	438
1.65	446
1.70	454
1.75	462
1.80	470
1.85	477
1.90	485
1.95	493
2.00	500
2.05	508
2.10	515
2.15	522
2.20	530
2.25	537
2.30	544
2.35	551
2.40	558
2.45	565
2.50	572
2.55	579
2.60	585
2.65	592

2.70	599
2.75	605
2.80	612
2.85	619
2.90	625
2.95	632

4. A person shall operate an airless cleaning machine or air-tight cleaning machine in accordance with the following procedures.
  - i. Parts being cleaned shall be drained for 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. A superheated vapor system shall be an acceptable alternate technology;
  - ii. Sponges, fabric, leather, paper products and other absorbent materials shall not be cleaned in the machine;
  - iii. Spills during solvent transfer and use of the machine shall be cleaned up immediately or the machine shall be shut down. Wipe rags or other sorbent material used shall be immediately stored in covered containers for disposal or recycling;
  - iv. 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;
  - v. Work area fans shall be located and positioned so that they do not blow across the opening of the machine;
  - vi. When solvent is added to or drained from the machine, the solvent shall be transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump shall be located beneath the liquid solvent surface;
  - vii. The working and downtime covers shall be closed at all times except when parts are entering or exiting from the machine, during maintenance of the machine when the solvent has been removed, and during addition of solvent to the machine; and
  - viii. The machine shall be maintained as recommended by the manufacturer of the equipment or using alternate maintenance practices that have been demonstrated to the Department's satisfaction to achieve the same or better results as those recommended by the manufacturer.
- (n) No person shall cause, suffer, allow, or permit the use of any oil-water separator unless such separator is covered with a lid while containing any VOC. Sections of oil-water separators containing essential powered mechanical devices operating above the liquid level are not subject to this requirement.

**7:27-16.7 Surface coating and graphic arts operations**

- (a) The provisions of this section shall apply to any surface coating operation or graphic arts operation to which any control criteria set forth in Table 7A, 7B, 7C or 7D applies, except for the following:
  - 1. Any surface coating operation or graphic arts operation located at a major VOC facility and having the potential to emit three pounds per hour or more of VOC shall instead be subject to the provisions of N.J.A.C.7:27-16.17;
  - 2. On or after June 29, 2004, any refinishing of mobile equipment at mobile equipment repair and refinishing facilities. Thereafter, such refinishing operations shall be subject to the requirements at N.J.A.C. 7:27-16.12 and the refinishing requirements in Table 7A shall no longer be applicable; and
  - 3. Any surface coating operation or graphic arts operation exempted under (l) below.
- (b) (Reserved)
- (c) No person shall cause, suffer, allow, or permit the use of any surface coating operation or graphic arts operation subject to this section, unless:
  - 1. The VOC content of any surface coating formulation as applied does not exceed the applicable maximum allowable VOC content if any, specified in Table 7A, 7B, 7C, or 7D; or
  - 2. Until March 28, 1994, the surface coating operation is included in a mathematical combination of sources which was approved by the Department prior to March 28, 1992.
  - 3. If more than one surface coating formulation subject to the same maximum allowable VOC content limit as set forth in Table 7A, 7B, 7C, or 7D is applied by a single surface coating or graphic arts operation and one or more of any such formulation are not in compliance with any limit specified in the applicable table, the daily weighted mean of the VOC content of the surface coating formulations as applied does not exceed the applicable maximum allowable VOC content as set forth in the applicable Table. This daily weighted mean shall be calculated using the following equation:

$$\text{Daily mean VOC Content} = \frac{\sum_{i=1}^n (C_i)(V_i)}{\sum_{i=1}^n (V_i)}$$

where n = number of surface coating formulations, subject to the same maximum allowable VOC content standard, applied in one day;

i = subscript denoting an individual surface coating formulation;

$(C_i)$  = maximum actual VOC content per volume of each surface coating formulation (minus water) applied in one day, in pounds per gallon or kilograms per liter; and

$(V_i)$  = volume of each surface coating formulation (minus water) applied in one day, in gallons or liters; or

4. The surface coating or graphic arts operation is served by VOC control apparatus satisfying the requirements listed in (c)4i through iii below:
  - i. The control apparatus for any surface coating operation prevents no less than 90 percent by weight of the VOC content in the surface coating formulation as applied each hour from being discharged directly or indirectly into the outdoor atmosphere; or
  - ii. The control apparatus for any graphic arts operation meets the collection and control requirements set forth in (h) below; or
  - iii. The VOC emissions from the surface coating or graphic arts operation are controlled by the control apparatus so that the operation results in an hourly VOC emission rate no greater than the maximum allowable hourly emission rate calculated on a solids as applied basis in accordance with the following equation:

$$\text{Maximum allowable hourly rate} = \frac{\left(1 - \frac{y}{d}\right)(z)(x)}{\left(1 - \frac{x}{d}\right)}$$

- where
- x = maximum allowable VOC content per volume of surface coating formulation (minus water), in pounds per gallon (lb/gal) or kilograms per liter (kg/l) as set forth in Table 7A, 7B, 7C, or 7D of this section;
  - d = density of the VOC of the applied surface coating formulation in pounds per gallon (lb/gal) or kilograms per liter (kg/l);
  - y = VOC content of the applied surface coating formulation (minus water) in pounds per gallon (lb/gal) or kilograms per liter (kg/l); and
  - z = volume of the surface coating formulation (minus water) applied per hour in gallons per hour (gal/hr) or liters per hour (l/hr); or

- iv. For a surface coating or graphic arts operation that applies more than one surface coating formulation subject to the same maximum allowable VOC content limit as set forth in the applicable table, the control apparatus collects and prevents VOC from being discharged into the outdoor atmosphere so that the actual daily emissions are less than the allowable daily emissions as calculated below:

$$\text{Actual daily emissions} = (1 - \eta_c \eta_d)(VOC_a)(V)$$

- where:
- $VOC_a$  = daily mean VOC content of the surface coating formulations as calculated by (c)3 above;
  - $V$  = total daily volume of the surface coating formulations, as applied;
  - $\eta_c$  = capture efficiency, i.e. the ratio of the VOC collected by the control apparatus to the VOC in the surface coating formulations as applied, as determined by a method approved by the Department and EPA; and
  - $\eta_d$  = destruction efficiency of the control apparatus, i.e. the ratio of the VOC prevented from being discharged into the outdoor atmosphere to the VOC collected by the control apparatus, as determined by a method approved by the Department and EPA; and

$$\text{Allowable daily emissions} = \frac{\left(1 - \frac{VOC_a}{d}\right)(V)(x)}{\left(1 - \frac{x}{d}\right)}$$

- where  $x$  = maximum allowable VOC content per volume of surface coating formulation (minus water), in pounds per gallon (lb/gal) or kilograms per liter (kg/l) as set forth in Table 7A, 7B, 7C, or 7D of this section;
- $d$  = density of the VOC of the applied surface coating formulations in pounds per gallon (lb/gal) or kilograms per liter (kg/l);
- $V$  = total daily volume, in gallons or liters, of the surface coating formulations (minus water) as applied per day; and
- $VOC_a$  = daily mean VOC content of the applied surface coating formulations as calculated by (c)3 above.

- (d) No person shall cause, suffer, allow, or permit the installation of any surface coating or graphic arts operation to apply a surface coating formulation which does not contain water deliberately added in a planned proportion unless a coating application system having a transfer efficiency of 60 percent or greater, or as otherwise approved by the Department, is used.
- (e) The provisions of (c) and (d) above and (h), (i), (j), (r)1 and (s) below shall not apply to any individual surface coating or graphic arts operation in which the total surface coating formulations containing VOC are applied:
  1. At rates not in excess of one half gallon per hour and two and one half gallons per day; or



2. For the purpose of developing new surface coating formulations or new equipment for use in surface coating or graphic arts operations, or for the purpose of performing research preceding such development provided such surface coating formulations are applied at rates not in excess of two gallons per hour and three gallons per day.
- (f) The owner or operator of any automobile or light duty truck surface coating operation may, as an alternative to complying, pursuant to (c) above, with the content limits set forth in Table 7A, comply with the provisions of Table 7C pertaining to spray prime and spray topcoat surface coating formulations, provided that the transfer efficiency of the spray coating operation is determined in accordance with a method approved by the Department and the EPA.

TABLE 7A

AUTOMOBILE OR LIGHT DUTY TRUCK SURFACE COATING OPERATIONS  
AT ORIGINAL EQUIPMENT MANUFACTURING FACILITIES  
CONTROL CRITERIA AND COMPLIANCE DATES

<b><u>Type of Operation</u></b>	<b>Maximum Allowable VOC Content Per Volume of Coating (Minus Water)</b>		<b><u>Final Compliance Date</u></b>
	<b><u>Pounds Per Gallon</u></b>	<b><u>Kilogram Per Liter</u></b>	
Prime			
Electrophoretic dip prime	1.2	0.14	December 31, 1982
Spray Prime	2.8	0.34	December 31, 1984
Topcoat			
Spray Topcoat	2.8	0.34	December 31, 1986
Repair	4.8	0.58	December 31, 1986
Custom Topcoating	5.0	0.60	June 15, 1990
Refinishing			
Base Coat	6.0	0.75	June 15, 1990
Clear Coat	4.4	0.54	June 15, 1990
All others	5.0	0.60	June 15, 1990

TABLE 7B

MISCELLANEOUS SURFACE COATING OPERATIONS  
CONTROL CRITERIA AND COMPLIANCE DATES

	<b>Maximum Allowable VOC Content per Volume of Coating (minus water)</b>		
<b><u>Type of Operation</u></b>	<b><u>Pounds per Gallon</u></b>	<b><u>Kilogram per Liter</u></b>	<b><u>Final Compliance Date</u></b>
<b>Group I</b>			
Can Coating			December 31, 1981
Sheet basecoat	2.8	0.34	
Two-piece can exterior			
Two- & three piece can interior body spray, two-piece and exterior	4.2	0.51	
Side-seam spray	5.5	0.66	
End sealing compound	3.7	0.44	
Coil Coating	2.6	0.31	December 31, 1981
Fabric Coating	2.9	0.35	December 31, 1981
Vinyl Coating	3.8	0.45	December 31, 1981
Paper Coating	2.9	0.35	December 31, 1981
Metal Furniture Coating	3.0	0.36	December 31, 1981
Magnet Wire Coating	1.7	0.20	December 31, 1981
Large appliance Coating	2.8	0.34	December 31, 1981
Coating of Miscellaneous Metal Parts and Products			December 31, 1983
Clear coating	4.3	0.52	
Air -dried coating	3.5	0.42	
Extreme performance coating	3.5	0.42	
All other coatings	3.0	0.36	
Coating of Flat Wood Paneling			December 31, 1983 through
Printed hardwood plywood panels and particleboard panels	2.7	0.32	(a day before the operative date of these amendments)

<b><u>Type of Operation</u></b>	<b>Maximum Allowable VOC Content per Volume of Coating (minus water)</b>		<b><u>Final Compliance Date</u></b>
	<b><u>Pounds per Gallon</u></b>	<b><u>Kilogram per Liter</u></b>	
Natural finish hardwood plywood	3.3	0.40	
Hardwood panels	3.6	0.43	
Coating of Flat Wood Paneling and Printed Hardwood			(the operative date of these amendments)
Printed interior panels made of hardwood, plywood, or thin particleboard	2.1	0.25	
Natural finish hardwood plywood	2.1	0.25	
Hardwood panels	2.1	0.25	
Exterior Siding	2.1	0.25	
Tileboards	2.1	0.25	
Group II			
Leather Coating	5.8	0.70	December 31, 1987
Urethane Coating	3.8	0.45	December 31, 1987
Tablet Coating	5.5	0.66	December 31, 1987
Glass Coating	3.0	0.36	December 31, 1987
Coating of Wood Furniture			December 31, 1987
Semitransparent stain	6.8	0.82	
Wash Coat	6.1	0.73	
Opaque Stain	4.7	0.56	
Sealer	5.6	0.67	
Pigment Coat	5.0	0.60	
Clear Topcoat	5.6	0.67	
Group III			
Pipe Coating for Metal and Concrete Pipe			
Clear coating	4.3	0.52	May 31, 1995, except December 31, 1983 for
Air-dried coating	3.5	0.42	

	<b>Maximum Allowable VOC Content per Volume of Coating (minus water)</b>		
<b><u>Type of Operation</u></b>	<b><u>Pounds per Gallon</u></b>	<b><u>Kilogram per Liter</u></b>	<b><u>Final Compliance Date</u></b>
Extreme performance coating	3.5	0.42	metal pipe coating
All other coatings	3.0	0.36	

TABLE 7C

ALTERNATIVE MAXIMUM ALLOWABLE VOC CONTENT IN COATINGS WITH MINIMUM TRANSFER EFFICIENCIES REQUIRED FOR SPRAY COATING OPERATIONS

<b>Maximum Allowable VOC Content per Volume of Coating (minus water)</b>		<b>Minimum Transfer Efficiency Required</b>
<b>Pounds per Gallon</b>	<b>Kilograms per Liter</b>	
3.0	0.36	34
3.2	0.38	37
3.4	0.41	42
3.6	0.43	47
3.8	0.46	52
4.0	0.48	58
4.2	0.50	65

NOTE: Each combination of VOC content and transfer efficiency in Table 7C is equivalent to a daily emission of 15.1 pounds of VOC per gallon of solids deposited, minus water. Verification of this equivalent emission rate using the methods prescribed in the "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light Duty Truck Topcoat Operations" (EPA 450/3-88-018) shall satisfy compliance with Table 7C.

TABLE 7D

GRAPHIC ARTS OPERATIONS

Part A  
COMPLIANCE DATES

<b>Type of Graphic Arts Operation</b>	<b>Final Compliance Date</b>
Rotogravure printing operations (web-fed) and flexographic printing operations which produce published material or packaging for commercial or industrial purposes <sup>1</sup>	December 31, 1981
Rotogravure printing operations (web-fed) and flexographic printing operations on vinyl or urethane coated fabric or sheets <sup>1</sup>	December 31, 1987
Fabric printing operations <sup>1</sup>	December 31, 1987
Gravure printing operations (sheet-fed)	May 31, 1995
Screen printing operations	May 31, 1995

Part B  
CONTROL CRITERIA FOR ROTOGRAVURE, SHEET-FED GRAVURE, AND FLEXOGRAPHIC SOURCE OPERATIONS

<b>Basis</b>	<b>Control Criteria of a Source Operation Constructed Prior to (the operative date of these amendments):</b>	
Surface coating formulations <sup>2</sup> that contain water:	Maximum allowable volume percent VOC in volatile fraction of surface coating formulations (VOC plus water) as applied.  25.0 percent	
Surface coating formulations <sup>2</sup> that do not contain water.	Maximum allowable VOC content per volume of surface coating formulation (minus water)	
	Pounds per Gallon  2.9	Kilograms per Liter  0.35
<b>Basis</b>	<b>Control Criteria of a Source Operation Constructed or Modified on or after (the operative date of these amendments):</b>	
Surface coating formulations <sup>2</sup>	Maximum allowable VOC content of surface coating formulation (minus water):  0.8 pounds VOC/pound solid applied  or  0.16 pounds VOC/pound materials applied	

Part C  
CONTROL CRITERIA FOR SCREEN PRINTING OPERATIONS

Basis	Control Criteria Maximum Allowable VOC Content per volume of surface coating formulations <sup>2</sup>	
	Pounds Per Gallon	Kilograms Per Liter
Substrate Category: <sup>3</sup>		
Paper	3.3	0.40
Glass and Ceramic	3.3	0.40
Metal	3.3	0.40
Rigid and Flexible Plastic	3.3	0.40
Reflective Sheeting	3.3	0.40
Pressure Sensitive Decals	3.3	0.40
Wood	3.3	0.40
Fabric	2.9	0.35
Surface Coating Formulation:		
Conductive Ink	8.5	1.03
Special Purpose Screen Printing Inks and Coatings	6.7	0.81

Part D  
CONTROL CRITERIA FOR FABRIC PRINTING SOURCE OPERATIONS

Basis	Control Criteria	
Surface coating formulations <sup>2</sup> that contain water:	Maximum allowable volume percent VOC in volatile fraction of surface coating formulations (VOC plus water) as applied.  25.0 percent	
Surface coating formulations <sup>2</sup> that do not contain water:	Maximum allowable VOC content per volume of surface coating formulation (minus water).  Pounds per Gallon      Kilograms per Liter  2.9                              0.35	

<sup>1</sup> Control apparatus serving certain graphic arts operations of this type which were constructed prior to July 26, 1994 may have compliance dates on or after July 26, 1994, pursuant to the provisions of (p) below.

<sup>2</sup> This term includes inks and coatings; see definition of "surface coating formulation."

<sup>3</sup> Except where conductive ink and special purpose screen printing inks and coatings are used.

- (g) The owner or operator of any metal furniture or large appliance surface coating operation may, as an alternative to complying with the applicable maximum allowable VOC content limits per volume of surface coating formulation (minus water) set forth in Group I of Table 7B, pursuant to (c)1 above, apply to the Department for an alternative maximum allowable VOC content limit per volume of surface coating formulation, provided such person can demonstrate to the satisfaction of the Department and the EPA that the surface coating formulation is applied at a transfer efficiency of greater than 60 percent.
- (h) The owner or operator of any rotogravure, sheet-fed gravure, flexographic, fabric, or screen printing operation may, as an alternative to complying with the control criteria requirements set forth in Table 7D, pursuant to (c)1 above:
  - 1. For any rotogravure or sheet-fed gravure printing operation installed prior to May 1, 2010, install and use control apparatus that collects at least 75 percent by volume of the source gas emitted from a rotogravure or gravure printing operation (sheet-fed), including associated dryers, and prevents from being discharged into the outdoor atmosphere:
    - i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions; or
    - ii. At least 90 percent by volume of the VOC collected on a hourly basis if a carbon adsorption system or any other control device is used to control emissions;
  - 2. For any flexographic printing operation installed prior to May 1, 2010, install and use control apparatus that collects at least 70 percent by volume of the source gas emitted, including from associated dryers, and prevents from being discharged into the outdoor atmosphere:
    - i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions; or
    - ii. At least 90 percent by volume of the VOC collected on an hourly basis if a carbon adsorption system or any other control device is used to control emissions.
  - 3. For any rotogravure, sheet-fed gravure, or flexographic printing operation installed or modified on or after May 1, 2010, neither (h)1 nor 2 above shall apply; the operation shall install and use control apparatus that collects at least 85 percent by volume of the source gas emitted from the operation, including associated dryers, and prevents from being discharged into the outdoor atmosphere:
    - i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions; or
    - ii. At least 90 percent by volume of the VOC collected on an hourly basis if a carbon adsorption system or any other control device is used to control emissions.

4. For any fabric printing operation, install and use control apparatus that collects at least 70 percent by volume of the source gas emitted including from associated dryers, and prevents from being discharged into the outdoor atmosphere:
  - i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions, except as provided in (p) below; or
  - ii. At least 90 percent by volume of the VOC collected on an hourly basis if a carbon adsorption system or any other control device is used to control emissions.
5. For any screen printing operation, install and use control apparatus that collects at least 70 percent by volume of the source gas emitted and prevents from being discharged into the outdoor atmosphere:
  - i. At least 95 percent by volume of the VOC collected on an hourly basis if a thermal oxidizer is used to control emissions; or
  - ii. At least 90 percent by volume of the VOC collected on an hourly basis if a carbon adsorption system or any other control device is used to control emissions.
- (i) Notwithstanding the provisions of (c)2 and (c)4.ii above, the owner or operator of any tablet coating operation that uses a surface coating formulation that does not comply with the maximum allowable VOC content limits per volume of coating (minus water) set forth in Table 7B, Group II, shall install and use control apparatus which prevents no less than 90 percent by weight of the VOC content in the surface coating formulation as applied each hour from being discharged directly or indirectly into the outdoor atmosphere.
- (j) The owner or operator of any wood furniture surface coating operation shall comply with the following requirements:
  1. At a facility emitting less than 50 tons (45.36 megagrams) of VOC per year, each surface coating formulation specified in Table 7B, Group II under "Wood Furniture" shall be applied using airless, air-assisted airless, or heated airless spray techniques, or another application method approved by the Department and the EPA as having a transfer efficiency of at least 40 percent; or
  2. At a facility emitting 50 tons (45.36 megagrams) of VOC or greater per year, each surface coating formulation specified in Table 7B, Group II under "Wood Furniture" shall be applied using airless, air-assisted airless, heated airless, electrostatic spray techniques, or flat line processes, or another application method approved by the Department and the EPA as having a transfer efficiency of at least 65 percent.
- (k) The owner or operator of any pipe coating operation, gravure printing operation (sheet-fed), or screen printing operation subject to (c) above shall comply with the following schedule:
  1. By October 26, 1994, submit to the Chief, Bureau of New Source Review, Environmental Regulation Program, Department of Environmental Protection, CN 027, Trenton, New Jersey 08625-0027, a complete application for each permit required, pursuant to N.J.A.C. 7:27-8, to achieve compliance with (c) above; and



2. By May 31, 1995, achieve compliance with (c) above and maintain compliance with this section thereafter.
- (l) The provisions of this section shall not apply to:
1. The surface coating of aircraft and marine vessel exteriors, exclusive of parts coated prior to installation or assembly;
  2. The refinishing of automobiles, if coating use is less than 50 gallons (189 liters) per week;
  3. The customized topcoating of automobiles and trucks, if coating use is less than 48 gallons (182 liters) per week; and
  4. The on-site coating of stationary structures such as, but not limited to, equipment used for manufacturing processes, storage tanks, bridges, and swimming pools. The coatings used in on-site coating operations are subject to the provisions at N.J.A.C. 7:27-23.
- (m) The owner or operator of any surface coating operation subject to this section applying only surface coating formulations which are subject to and conform with the applicable VOC content limit set forth in Table 7A, 7B, 7C, or 7D shall maintain records of the VOC content of each surface coating formulation (minus water) as applied, in pounds of VOC per gallon of coating or kilograms of VOC per liter of coating; the percent by weight of any exempt organic substance; and the daily volume of each surface coating formulation applied.
- (n) The owner or operator of any surface coating operation, or graphic arts operation, which is subject to this section and which uses one or more surface coating formulations which do not conform with the applicable VOC content limit set forth in Table 7A, 7B, 7C, or 7D, shall maintain the following records:
1. For each surface coating formulation including each change of diluent or concentration of diluent as applied, record the following:
    - i. The number of hours each surface coating formulation was applied and the date;
    - ii. The volume of each surface coating formulation applied;
    - iii. The density of each surface coating formulation;
    - iv. The density of the VOC in each surface coating formulation;
    - v. The percent by weight of VOC in each surface coating formulation;
    - vi. The percent by weight of any exempt organic substance in each surface coating formulation;
    - vii. The percent by weight of any water in each surface coating formulation;
  2. For any surface coating operation that has a thermal oxidizer used to control the emission of VOC, record on a continuous basis or at a frequency approved in writing by the Department the operating temperature at the exit of the combustion chamber and the carbon monoxide concentration in the flue gas emitted to the outdoor atmosphere;

3. For any surface coating operation that has a control apparatus using carbon or other adsorptive material to control the emission of VOC:
    - i. Record on a continuous basis or at a frequency approved in writing by the Department the concentration of the total VOC in the flue gas emitted to the outdoor atmosphere; or
    - ii. Record the date and time the carbon or other adsorptive material used in the control apparatus is regenerated or replaced; and maintain any other information required to document whether the control apparatus is being used and maintained in accordance with the manufacturer's recommended procedures. The manufacturer's recommendations for use and maintenance are to be readily available on the operating premises, and the person responsible for the surface coating operation shall provide these to the Department upon request; and
  4. Upon request of the Department and at a frequency specified by the Department, record any other operation parameter relevant to the prevention or control of air contaminant emissions from the surface coating operation or control apparatus.
- (o) The method(s) to be used to determine the composition of a surface coating formulation as required by (m) or (n) above may include utilization of standard formulation sheets, material safety data sheets, the results of analytical tests, or other methods approved in advance and provided that the required information can be readily extracted from the documents.
- (p) Notwithstanding the provisions of (h)4 above, the owner or operator of any fabric printing operation subject to this section pursuant to (a)1 above, may continue to use a control apparatus which was installed and continues to be operated in compliance with a permit issued by the Department for the printing operation prior to July 26, 1994 so long as the control apparatus has not been altered or replaced since the date of approval of the current permit. If and when the control apparatus is altered or replaced, the new or altered control apparatus shall at a minimum meet the requirements set forth in (h)4 above.
- (q) After receipt of a written request from an owner or operator for an extension of the deadline set forth in (k)1 above, the Department may authorize a 60-day renewable extension upon showing of good cause. Such extension may be renewed by the Department upon the written request of the owner or operator. Approval of such an extension shall not constitute approval of extension of the May 31, 1995 deadline established in (k)2 above. Written requests for the extension of a deadline submitted pursuant to this subsection shall be addressed to:
- Assistant Director, Air and Environmental Quality Enforcement  
Division of Enforcement Field Operations  
Department of Environmental Protection  
PO Box 422  
401 East State Street, 4th Floor  
Trenton, New Jersey 08625-0422
- (r) The owner or operator of a letterpress printing operation and the owner or operator of a lithographic printing operation shall comply with the following:
1. On and after May 1, 2010, any heatset web lithographic printing operation or heatset letterpress printing operation shall:

- i. Achieve greater than 95 percent control of VOC emissions from the dryer;
    - ii. Achieve less than 20 parts per million by volume as equivalent hexane emitted from the dryer on a dry basis prior to any dilution of the gas stream with ambient air after the gas stream exits the dryer; or
    - iii. Achieve for a carbon adsorption unit or any non-thermal control device at least 90 percent by volume of the source gas emitted to the atmosphere.
  2. On and after (the operative date of these amendments), any cleaning material used on any lithographic or letterpress printing press shall:
    - i. Have a composite VOC vapor pressure less than 10 mm Hg at 20 degrees Celsius; or
    - ii. Have a VOC content of less than 70 percent by weight.
  3. On and after (the operative date of these amendments), no greater than a total of 110 gallons per calendar year of cleaning materials that do not meet one of the requirements at (r)2 above may be used to clean a lithographic or letterpress printing press.
  4. On and after (the operative date of these amendments), a cleaning material used to clean a lithographic or letterpress printing operation is not required to meet (r)2 above for cleaning electronic components of a press, pre-press cleaning operations (for example, platemaking), post-press cleaning operations (for example, binding), or cleaning performed in parts washers or cold cleaners.
  5. Record and maintain on-site, logs of the implementation of the cleaning material requirements at (r)2 through 4 above, pursuant to N.J.A.C. 7:27-16.22.
- (s) On and after (the operative date of these amendments), the owner or operator of a lithographic printing operation shall comply with the following:
  1. Any fountain solution used in a heatset web lithographic printing operation shall not exceed:
    - i. A VOC content of 1.6 percent by weight or less; or
    - ii. A VOC content of 3.0 percent by weight or less if the fountain solution is refrigerated to below 60 degrees Fahrenheit.
  2. Any fountain solution used for a coldset web offset lithographic printing operation or a sheet-fed offset lithographic printing operation shall not exceed (s)2i or ii below. This exceedance limitation shall not apply to an operation with a sheet size of 187 square inches or less or a total fountain solution reservoir of less than one gallon.
    - i. A VOC content of 5.0 percent by weight or less; or

- ii. A VOC content of 8.5 percent by weight or less if the fountain solution is refrigerated to below 60 degrees Fahrenheit.
  3. Record and maintain on-site, logs of the implementation of the fountain solution requirements at (s)1 and 2 above, pursuant to N.J.A.C. 7:27-16.22.
- (t) On or after (the operative date of these amendments), no person shall cause, suffer, allow, or permit the use of any flat wood paneling coating, printed hardwood coating, or lithographic, letterpress, rotogravure, sheet-fed gravure or flexographic printing operation without implementing the following best management practices:
1. All coatings, thinners, and cleaning materials containing any VOC shall be stored in closed containers, which shall prevent the contents from coming in contact with and being exposed to the atmosphere;
  2. All coatings, thinners, and cleaning materials containing any VOC shall be conveyed in closed containers or pipes, which shall prevent the contents from coming in contact with and being exposed to the atmosphere;
  3. Each mixing vessel containing any VOC coating and any other material shall have a cover which is closed, which shall prevent the contents from coming in contact with and being exposed to the atmosphere except when adding to, removing from, or mixing in the vessel;
  4. All used shop towels containing any VOC shall be kept in closed containers, which shall prevent the contents from coming in contact with and being exposed to the atmosphere;
  5. All coatings, thinners and cleaning material spills containing any VOC shall be cleaned up immediately; and
  6. Record and maintain on-site, logs of the implementation of the best management practices required at (t)1 through 5 above, pursuant to N.J.A.C. 7:27-16.22.

### **7:27-16.8 Boilers**

- (a) The provisions of this section apply to any boiler which is subject to the provisions of N.J.A.C. 7:27-19.
- (b) The owner or operator of any boiler serving an electric generating unit, regardless of size, or any industrial/commercial/institutional boiler with a maximum gross heat input rate of at least 50 million BTU per hour or greater shall:

1. Cause it to emit VOC in concentrations that do not exceed 50 ppmvd at seven percent oxygen;
  2. Cause it to emit CO in concentrations that do not exceed 100 ppmvd at seven percent oxygen; and
  3. Adjust its combustion process in accordance with the procedure set forth at N.J.A.C. 7:27-19.16 and the following schedule:
    - i. For any boiler serving an electric generating unit, regardless of size, by May 1 of each calendar year, except the adjustment may occur within seven days of the first period of operation after May 1, if the boiler has not operated between January 1 and May 1 of that year; or
    - ii. For any industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 50 million BTU per hour or greater:
      - (1) If not located at a major NO<sub>x</sub> facility, in the same quarter of each calendar year beginning in 2007; or
      - (2) If located at a major NO<sub>x</sub> facility, or required by this section prior to November 7, 2005 to adjust the combustion process, in the same quarter of each calendar year.
- (c) The owner or operator of any industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate at least five million BTU per hour, but less than 50 million BTU per hour, shall adjust the combustion process annually in accordance with the procedure set forth at N.J.A.C. 7:27-19.16 and the following schedule:
1. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least five million BTU per hour, but less than 10 million BTU per hour, whether or not located at a major NO<sub>x</sub> facility, in the same quarter of each calendar year, beginning in 2010; and
  2. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 10 million BTU per hour, but less than 20 million BTU per hour, whether or not located at a major NO<sub>x</sub> facility, in the same quarter of each calendar year, beginning in 2008; or
  3. For an industrial/commercial/institutional boiler or other indirect heat exchanger with a maximum gross heat input rate of at least 20 million BTU per hour, but less than 50 million BTU per hour:
    - i. If not located at a major NO<sub>x</sub> facility, in the same quarter of each calendar year beginning in 2007; or
    - ii. If located at a major NO<sub>x</sub> facility, or required by this section prior to November 7, 2005 to adjust the combustion process, in the same quarter of each calendar year.

- (d) Except as set forth in (b)3ii(1), (c)1 and 2, and (c)3i above, any owner or operator of a boiler subject to this section shall achieve compliance with (b) above by May 31, 1995, and maintain compliance with this subsection thereafter.
- (e) The owner or operator of any boiler serving:
  - 1. An electric generating unit or industrial/commercial/institutional boiler subject to this section, except as set forth in (b)3ii(1), (c)1 and (2), and (c)3i above, shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 before May 31, 1996; and\*
  - 2. An industrial/commercial/institutional boiler subject to (b)3ii(1) above, shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 on or before March 7, 2008.
- (f) The owner or operator of any boiler serving an electric generating unit subject to this section shall install a continuous emissions monitoring system for CO in accordance with the procedures set forth at N.J.A.C. 7:27-19.18 before May 31, 1995.
- (g) The owner or operator of any industrial/commercial/institutional boiler with a maximum gross heat input rate of greater than 250 million BTU per hour shall install a continuous monitoring system for CO in accordance with the procedures set forth at N.J.A.C. 7:27-19.18 before May 31, 1995.
- (h) Any source conducting emissions tests for VOC in accordance with this subsection shall do so using New Jersey Air Test Method 3 (N.J.A.C. 7:27B-3) or any equivalent method approved in advance by the Department and acceptable to EPA.
- (i) Any source conducting emissions monitoring for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix B, Performance Specification Test No. 2, and 40 CFR 60, Appendix F, Quality Assurance Requirements, including any amendments or supplements thereto, incorporated herein by reference, or any equivalent method approved in advance by the Department and acceptable to EPA.
- (j) Any source conducting emissions tests for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix A, Reference Method 10, including any amendments or supplements thereto, incorporated herein by reference, or any equivalent method approved in advance by the Department and acceptable to EPA.
- (k) Any owner or operator submitting a Repowering Plan for a combustion source pursuant to N.J.A.C. 7:27-19 may submit facility-specific CO and VOC limits as an alternative to those specified in this section as part of the facility's proposed Repowering Plan.

#### **7:27-16.9 Stationary combustion turbines**

- (a) The provisions of this section apply to any stationary combustion turbine that is subject to the provisions of N.J.A.C. 7:27-19, except emergency generators.
- (b) The owner or operator of any stationary combustion turbine shall cause it to emit CO in concentrations that do not exceed 250 parts per million by volume, dry basis (ppmv) at 15 percent oxygen.

- (c) The owner or operator of any stationary combustion turbine shall cause it to emit VOC in concentrations that do not exceed 50 ppmvd at 15 percent oxygen.
- (d) Any owner or operator of a stationary combustion turbine:
  - 1. With a maximum gross heat input rate of at least 30 million BTU per hour or greater, subject to this section shall achieve compliance with this section by May 31, 1995, and maintain compliance with this section thereafter; or
  - 2. With a maximum gross heat input rate of at least 25 million BTU, but less than 30 million BTU per hour, subject to this section shall achieve compliance with this section March 7, 2007, and maintain compliance with this section thereafter.
- (e) The owner or operator of any stationary combustion turbine:
  - 1. With a maximum gross heat input rate of at least 30 million BTU per hour or greater, subject to this section shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 before May 31, 1996; or
  - 2. With a maximum gross heat input rate of at least 25 million BTU, but less than 30 million BTU per hour, subject to this section shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 on or before March 7, 2008.
- (f) The owner or operator of any stationary combustion turbine subject to this section with a maximum gross heat input rate of at least 25 million BTU per hour, shall adjust the combustion process in accordance with the procedure set forth at N.J.A.C. 7:27-19.16 and the following schedule:
  - 1. For a stationary combustion turbine that has a maximum gross heat input rate of at least 25 million BTU but less than 30 million BTU per hour, according to manufacturer's recommended maintenance schedules beginning in 2007; or
  - 2. For a stationary combustion turbine that has a maximum gross heat input rate of at least 30 million BTU per hour or greater, or required by this section prior to November 7, 2005 to adjust the combustion process, according to manufacturer's recommended maintenance schedules.
- (g) Any source conducting emissions tests for VOC in accordance with this section shall do so using New Jersey Air Test Method 3 (N.J.A.C. 7:27B-3) or any equivalent method approved in advance by the Department and acceptable to EPA.
- (h) Any source conducting emissions monitoring for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix B, Performance Specification Test No. 2, and 40 CFR 60, Appendix F, Quality Assurance Requirements, including any amendments or supplements thereto, or any equivalent method approved in advance by the Department and acceptable to EPA.
- (i) Any source conducting emissions tests for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix A, Reference Method 10, including any amendments or supplements thereto, or any equivalent method approved in advance by the Department and acceptable to EPA.

- (j) Any owner or operator submitting a Repowering Plan for a combustion source pursuant to N.J.A.C. 7:27-19 may submit facility-specific CO and VOC limits as an alternative to those specified in this section as part of the facility's proposed Repowering Plan.

#### **7:27-16.10 Stationary reciprocating engines**

- (a) The provisions of this section apply to any stationary reciprocating engine that is subject to the provisions of N.J.A.C. 7:27-19, except emergency generators.
- (b) The owner or operator of any stationary reciprocating engine subject to this section shall cause it to emit CO in concentrations that do not exceed 500 parts per million by volume, dry basis (ppmvd) at 15 percent oxygen.
- (c) Any owner or operator of a stationary reciprocating engine:
  - 1. With a maximum rated power output of at least 500 brake horsepower or greater, subject to this section shall achieve compliance with this section by May 31, 1995, and maintain compliance with this section thereafter; or
  - 2. With a maximum rated power output of at least 37 kW, but less than 370 kW, used for generating electricity, subject to this section shall achieve compliance with this section March 7, 2007, and maintain compliance with this section thereafter.
- (d) The owner or operator of any stationary reciprocating engine:
  - 1. With a maximum rated power output of at least 500 brake horsepower or greater, subject to this section shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 before May 31, 1996; or
  - 2. With a maximum rated power output of at least 37 kW, but less than 370 kW, used for generating electricity, subject to this section shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 on or before March 7, 2008.
- (e) The owner or operator of any stationary reciprocating engine subject to this section with a maximum rated power output of at least 37 kW or greater, whether or not located at a major NO<sub>x</sub> facility, shall adjust the combustion process in accordance with the procedure set forth at N.J.A.C. 7:27-19.16 and the following schedule:
  - 1. For a stationary reciprocating engine that has a maximum rated power output of at least 37 kW, but less than 370 kW, used for generating electricity, adjust the combustion process according to manufacturer's recommended maintenance schedules beginning in 2007; or
  - 2. For a stationary reciprocating engine that has a maximum rated power output of at least 500 brake horsepower or greater, or required by this section prior to November 7, 2005 to adjust the combustion process, according to manufacturer's recommended maintenance schedules.



- (f) Any source conducting emissions tests for VOC to determine compliance with this section shall do so using Reference Method 10 found in 40 CFR Part 60 - Appendix A or any equivalent method approved in advance by the Department and acceptable to EPA.
- (g) Any source conducting emissions monitoring for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix B, Performance Specification Test No. 2, and 40 CFR 60, Appendix F, Quality Assurance Requirements, including any amendments or supplements thereto, or any equivalent method approved in advance by the Department and acceptable to EPA.
- (h) Any source conducting emissions tests for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix A, Reference Method 10, including any amendments or supplements thereto, or any equivalent method approved in advance by the Department and acceptable to EPA.

#### **7:27-16.11 Asphalt pavement production plants**

- (a) The provisions of this section shall apply to any batch mix asphalt plant which is located at a major VOC facility or any drum mix asphalt plant which is located at a major VOC facility. Any batch mix asphalt plant or any drum mix asphalt plant may opt to be subject to the provisions of N.J.A.C. 7:27-16.17.
- (b) The owner or operator of a batch mix asphalt plant or a drum mix asphalt plant shall cause it to emit CO in concentrations that do not exceed 500 ppmvd at seven percent oxygen and VOC in concentrations that do not exceed 250 ppmvd at seven percent oxygen.
- (c) Any owner or operator of an asphalt pavement production plant subject to this section shall achieve compliance with this section by May 31, 1995, and maintain compliance with this section thereafter.
- (d) Any owner or operator of an asphalt pavement production plant subject to this section shall demonstrate compliance with this subchapter in accordance with the procedures at N.J.A.C. 7:27-16.23 before May 31, 1996.
- (e) Any owner or operator of any asphalt pavement production plant subject to this section shall adjust the combustion process in accordance with the procedure set forth in its permit and certificate or at least once per year beginning in 1995, whichever is more stringent.
- (f) Any source conducting emissions tests for VOC to determine compliance with this section shall do so using New Jersey Air Test Method 3 (N.J.A.C. 7:27B-3) or any equivalent method approved in advance by the Department and acceptable to EPA.
- (g) Any source conducting emissions monitoring for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix B, Performance Specification Test No. 2, and 40 CFR 60, Appendix F, Quality Assurance Requirements, including any amendments or supplements thereto, or any equivalent method approved in advance by the Department and acceptable to EPA.
- (h) Any source conducting emissions tests for CO to determine compliance with this section shall do so using the method set forth at 40 CFR 60, Appendix A, Reference Method 10, including any amendments or supplements thereto, or any equivalent method approved in advance by the Department and acceptable to EPA.

**7:27-16.12 Surface coating operations at mobile equipment repair and refinishing facilities**

- (a) This section shall apply on or after June 29, 2004 to surface coating operations performed at mobile equipment repair and refinishing facilities, and to the owners and operators of such facilities.
- (b) Notwithstanding the requirements of (a) above, this section shall not apply to the following refinishing or repair operations:
  - 1. A refinishing or repair operation which is subject to the standards set forth at N.J.A.C. 7:27-16.7;
  - 2. An original equipment surface coating operation at an automobile assembly plant; or
  - 3. A refinishing or repair operation performed by a person who does not receive compensation for the application of the coating.
- (c) No person shall apply any coating, including but not limited to an automotive pretreatment coating, automotive primer-surface coating, automotive primer-sealer, automotive topcoat, or any automotive specialty coating, that contains VOC in excess of the applicable limits specified in Table 12A, below, to mobile equipment or mobile equipment components.

**Table 12A  
MAXIMUM ALLOWABLE VOC CONTENT OF COATINGS  
USED FOR MOBILE EQUIPMENT REPAIR OR REFINISHING**

Coating Type	Limit	
	Pounds per gallon	Grams per liter
Automotive pretreatment	6.5	780
Automotive primer-surfacer	4.8	580
Automotive primer-sealer	4.6	550
Automotive topcoat:		
Single stage-topcoat	5.0	600
2 stage basecoat/clearcoat	5.0	600
3 or 4-stage basecoat/clearcoat	5.2	630
Automotive multi-colored Topcoat	5.7	680
Automotive specialty	7.0	840

- (d) For the purpose of determining compliance with the limits set forth in Table 12A above, the VOC content of a coating applied, or to be applied, as part of an mobile equipment repair and refinishing operation, shall be calculated as follows:
  - 1. The VOC content of a coating shall be calculated in accordance with the following equation:

$$VOC = \frac{(W_v + W_a - W_w - W_n)}{(V + V_a - V_w - V_n)}$$

Where:

VOC = The VOC content of a given coating, given in pounds per gallon (lbs/gal) or grams per liter (g/l) as applicable;

W<sub>v</sub> = Mass of total volatiles, given in pounds or grams as applicable;

W<sub>a</sub> = Mass of total VOC in additives or other materials that are added to the coating prior to its application, given in pounds or grams as applicable;

W<sub>w</sub> = Mass of the water in coating (if any), given in pounds or grams as applicable;

W<sub>n</sub> = Mass of any non-VOC solvent in the coating, given in pounds or grams as applicable;

V = Volume of coating, given in gallons or liters as applicable; and

V<sub>a</sub> = Volume of VOC-containing additives or other materials that are added to the coating prior to its application, given in gallons or liters as applicable;

V<sub>w</sub> = Volume of the water in coating (if any), given in gallons or liters as applicable; and

V<sub>n</sub> = Volume of any non-VOC solvent in the coating, given in gallons or liters as applicable; and

2. The VOC content of a multi-stage topcoat shall be calculated in accordance with the following equation:

$$VOC_{multi} = \frac{VOC_{bc} + \sum_{i=0}^M VOC_{mci} + 2(VOC_{cc})}{M + 3}$$

Where:

VOC<sub>multi</sub> = VOC content of multistage topcoat, given in pounds per gallon or grams per liter, as applicable;

VOC<sub>bc</sub> = VOC content of basecoat, given in pounds per gallon or grams per liter, as applicable;

VOC<sub>mci</sub> = VOC content of a given midcoat, given in pounds per gallon or grams per liter, as applicable;

VOC<sub>cc</sub> = VOC content of the clear coat, given in pounds per gallon or grams per liter, as applicable;

i = A given midcoat; and

M = Total number of midcoats; and

3. To determine the composition of a coating in order to perform the calculations above, the reference method for VOC content is Method 24 of appendix A of 40 CFR part 60 except as provided in paragraph 3.i below. To determine the VOC content of a coating, the regulated entity may use Method 24 of appendix A of 40 CFR part 60, an alternative method as provided in paragraph 3.ii below, or any other reasonable means for predicting that the coating has been formulated as intended (e.g., quality assurance checks, recordkeeping). However, if there are any inconsistencies between the results of a Method 24 test and any other means for determining VOC content the Method 24 test results will govern. The Department may require the regulated entity to conduct a Method 24 analysis.
  - i. The Department may approve, on a case-by-case basis, a regulated entity's use of an alternative method in lieu of Method 24 for determining the VOC content of coatings, if the alternative method is demonstrated to the satisfaction of the Department and the USEPA, to provide results that are acceptable for purposes of determining compliance with this subchapter.
  - ii. The USEPA Test Method 24, which is located in 40 CFR, Chapter I, Part 60, Appendix A-7, and any subsequent changes, is incorporated by reference herein. This test method can be downloaded from the following website: [http://www.access.gpo.gov/nara/cfr/cfrhtml\\_00/Title\\_40/40cfr60a\\_00.html](http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr60a_00.html).
- (e) The owner or operator of a surface coating operation subject to (c) above shall keep a record at the facility of the VOC content of each coating used, calculated in accordance with (d) above. Such records shall be readily available upon request by the Department.
- (f) To apply any of the coating types listed in Table 12A above, the owner or operator of a surface coating operation subject to (c) above shall use only one or more of the following application techniques:
  1. Flow/curtain coating;
  2. Dip coating;
  3. Roller coating;
  4. Brush coating;
  5. Cotton-tipped swab application;
  6. Electrodeposition coating;
  7. High volume low pressure (HVLP) spraying;
  8. Electrostatic spray;
  9. Airless spray; and/or

10. Any other coating application method, provided that:
  - i. The owner or operator has submitted a demonstration to the Department and EPA that the VOC emissions resulting from this application method do not exceed the emissions that would result from either the HVLP or electrostatic spray application method; and
  - ii. Both the Department and EPA have affirmed in writing that they are satisfied with the demonstration and approve the use of the coating application method.
- (g) To clean a spray gun used to apply coating(s) at a mobile equipment repair and refinishing facility, the owner or operator of a facility subject to this section shall use one of the following methods:
  1. An enclosed spray gun cleaning system that is kept closed when not in use;
  2. An unatomized discharge of the remaining coating in the spray gun into a paint waste container that is kept closed when not in use;
  3. Disassembly of the spray gun and cleaning of the spray gun in a vat that is kept closed when not in use; or
  4. An atomized spray of solvent used for cleaning, into a paint waste container that is fitted with a device designed to capture atomized solvent emissions.
- (h) The owner or operator of a mobile equipment repair and refinishing facility subject to this section shall implement the following housekeeping measures:
  1. The following materials shall be stored in nonabsorbent, nonleaking containers:
    - i. Fresh coatings;
    - ii. Used coatings;
    - iii. Solvents, including cleaning solvents;
    - iv. VOC-containing additives;
    - v. Other VOC-containing materials that are added to the coating prior to application;
    - vi. VOC-containing waste materials; and
    - vii. Cloth, paper, or absorbent applicators, moistened with any of the materials listed in (h)1i through vi above;
  2. The containers referenced at (h)1 above shall be kept closed at all times except when being filled or emptied; and
  3. Handling and transfer procedures shall minimize spills during the transfer of the following:
    - i. Coatings;
    - ii. Solvents, including cleaning solvents;

- iii. VOC-containing additives;
  - iv. Other VOC-containing materials that are added to the coating prior to application; and
  - v. VOC-containing waste materials.
- (i) The owner or operator of a mobile equipment repair and refinishing facility subject to this section shall ensure that any person who applies coatings at the mobile equipment repair and refinishing facility has completed training in the proper use and handling of the following in order to minimize the emission of air contaminants:
- 1. Coatings;
  - 2. Solvents, including cleaning solvents;
  - 3. VOC-containing additives;
  - 4. Other VOC-containing materials that are added to the coating prior to application; and
  - 5. VOC-containing waste materials.
- (j) The following coating applications are exempt from the requirements of (g), (h) and (i) above:
- 1. The application of a coating through use of an airbrush application method for stenciling, lettering, and other identification marking;
  - 2. The application of a coating sold in nonrefillable aerosol containers; and
  - 3. The application of automotive touch-up repair and refinishing materials.

### **7:27-16.13 Flares**

- (a) Any flare in use at a major VOC facility after May 31, 1995, shall:
- 1. Have been designed to reduce the concentration of VOC from the source operation by no less than 95 percent;
  - 2. Have been installed in accordance with the specifications provided by the manufacturer of the flare; and
  - 3. Be operated and maintained in accordance with the specifications provided by the manufacturer of the flare.
- (b) The owner or operator of any existing flare subject to this section shall submit in writing, to the Assistant Director of Air and Environmental Quality Enforcement, Division of Enforcement Field Operations, Department of Environmental Protection, CN 422, Trenton, N.J. 08625-0422, the following information prior to May 31, 1995. The following information shall be submitted with any permit application for any flare to be installed after that date. Such submittal shall be certified in accordance with N.J.A.C. 7:27-1.39.

1. The name of the owner and operator of the flare;
  2. The make, model and serial number of the flare;
  3. A copy of the manufacturer's specification of the performance standards for the flare;
  4. A statement that the flare was installed in accordance with the manufacturer's specifications;
  5. A statement that the flare is being operated and maintained in accordance with the manufacturer's specifications; and
  6. A statement that the flare will continue to be operated in accordance with the manufacturer's specifications.
- (c) The owner or operator of a flare subject to this section shall inspect the flare before May 1 of each year beginning in 1995 to verify that the flare continues to be operated in accordance with the manufacturer's specifications for the operation of the flare. The owner or operator of the flare shall record the following in a permanently bound log book at the conclusion of each inspection:
1. The name of the person conducting the inspection;
  2. The date on which the inspection was conducted;
  3. An entry indicating which flare was inspected;
  4. Any changes or adjustments made to the flare as a result of the inspection; and
  5. A statement stating that the flare is currently being operated in compliance with the manufacturer's specifications.

**7:27-16.14 through 7:27-16.15 (Reserved)**

**7:27-16.16 Other source operations**

- (a) The provisions of this section apply to any source operation, except source operations in the following categories (Note: Source operations in those categories designated by an asterisk (\*) which have the potential to emit three pounds per hour or more of VOC and which are located at a major VOC facility, are regulated by N.J.A.C. 7:27-16.17.):
1. VOC Storage Operations
  2. Gasoline transfer operations;
  3. VOC transfer operations, other than gasoline;
  4. Marine transfer operations;
  5. Open top tanks and surface cleaners;
  6. Surface coating and graphic arts operations;
  7. Boilers;
  8. Stationary combustion turbines;
  9. Stationary reciprocating engines;
  10. Asphalt pavement production plants;
  11. Natural gas pipeline blowdown events;

12. Flares;
  13. Petroleum solvent dry cleaning operations;
  14. Fiberglass manufacturing furnaces;
  15. Glass manufacturing furnaces;
  16. Fuel burning for steam generation for space heating;
  17. Sulfuric acid plant burners;
  18. Any source operation regulated pursuant to N.J.A.C. 7:27-16.17; and
  19. Any source operation exempted from this subchapter pursuant to N.J.A.C. 7:27-16.27.
- (b) Source operations to which this section apply are not limited to those involved in manufacturing and include, without limit, the following: agitators, autoclaves, bakery ovens, blenders, centrifuges, distillation processes, driers, extruders, fermentation processes, fiberglass boat or vessel manufacturing operations, fiberglass product manufacturing operations, foam blowing operations, fumigation chambers, mills, mixers, ovens, reactors, receivers, roasters, sterilization operations, and synthetic fiber manufacturing operations. The provisions of this section do not apply to any insignificant source operation as defined in N.J.A.C. 7:27- 8.2 or 22.1.
- (c) No person shall cause, suffer, allow, or permit any VOC to be emitted into the outdoor atmosphere from any source operation subject to the provisions of this section, in excess of the maximum allowable emission rate, as determined in accordance with the procedure in (d) below.
- (d) For the purposes of (c) above, the maximum allowable emission rate for a source operation subject to this section shall be determined in accordance with the following procedure:
1. Determine the vapor pressure at standard conditions in pounds per square inch absolute of the VOC emitted from the source operation.
  2. Determine the percent by volume of the VOC in the source gas emitted from the source operation. Whenever dilution gas is added to the source gas from a source operation, the source gas shall be considered to have the gas discharge rate and composition prior to such dilution, in accordance with the following:
    - i. If the source operation discharges under a ventilation hood, concentration of VOC and the flow rate of the source gas may be measured or otherwise determined in the duct connecting the hood to the inlet of the ventilation fan.
    - ii. If the emissions and ventilation air are conveyed through ducts from the source operation to the outdoor atmosphere with no interruption, the concentration of VOC and the rate of the source gas are to be determined inside the ducts.
    - iii. For all other source operations including, but not limited to, evaporation from steps in chemical manufacturing processes, the concentration of VOC and the rate of the source gas shall be measured at a point no farther than six inches (15 centimeters) downstream from the point at which the vapors leave the process equipment.
  3. From Table 16B, find the source gas range classification by selecting the appropriate line for the vapor pressure as determined in Step 1 and the appropriate column for the percent VOC as determined in Step 2.
  4. From Table 16A, Column 2, determine the maximum allowable percent of process emissions for the source gas range as determined in Step 3.



5. The maximum allowable emission rate shall be the pounds (kilograms) per hour (or per batch cycle hour) equivalent to the percent of the process emissions shown in Column 2 or the Exclusion Rate shown in Column 3, whichever is greater.

**TABLE 16A  
MAXIMUM ALLOWABLE HOURLY VOC EMISSIONS  
FROM SOURCE OPERATIONS**

Column 1	Column 2	Column 3	
Range Determined From Table 16B	Maximum Allowable emissions, Percent of Process Emissions by Weight	Exclusion Rates As of June 15, 1990 Continuous or Batch Cycle Emission	
		Pounds Per Hour	Kilograms Per Hour
Range A	15	3.5	1.59
Range B	15	3.0	1.36
Range C	15	2.5	1.14
Range D	12	2.0	0.91
Range E	10	1.5	0.68
Range F	8	1.0	0.46
Range G	2	0.5	0.23
Range H	0.3	0.0	0.00
Range I	15	3.5	1.59

TABLE 16B  
DETERMINANTS OF CONTROLS REQUIRED FOR PROCESS SOURCE GASES

Vapor Pressure P SIA @ 70F		Concentration of VOC by Volume, Percent													
		Range A		Range B		Range C		Range D		Range E		Range F		G	H
Greater than	But not Greater Than	Not Greater Than		Greater than	But not Greater Than	Greater Than	But not Greater Than	Greater than	But not Greater Than	Greater than	But not Greater Than	Greater than	But not Greater Than		
0.0	0.1	0.1% (1,000 PPM)		0.1% (1,000 PPM)		1.0% (10,000 PPM)		-	-	1.0	18.0	18.0	97% Vapor	Greater Than 97% But Not Greater Than 99.5%	Greater Than 99.5%
0.1	0.2							-	1.0	7.0	7.0	29.0	29.0		
0.2	0.3							6.0	6.0	13.0	13.0	40.0	40.0		
0.3	0.4							9.0	9.0	18.0	18.0	45.0	45.0		
0.4	0.5							12.0	12.0	22.0	22.0	50.0	50.0		
0.5	0.6							14.0	14.0	25.0	25.0	56.0	56.0		

Vapor Pressure P SIA @ 70F		Concentration of VOC by Volume, Percent													
		Range A		Range B		Range C		Range D		Range E		Range F		G	H
Greater than	But not Greater Than	Not Greater Than		Greater than	But not Greater Than	Greater Than	But not Greater Than	Greater than	But not Greater Than	Greater than	But not Greater Than	Greater than	But not Greater Than		
0.6	0.7						16.0	16.0	28.0	28.0	60.0	60.0			
0.7	0.8						18.0	18.0	31.0	31.0	64.0	64.0			
0.8	0.9						20.0	20.0	34.0	34.0	67.0	67.0			
0.9	1.0						22.0	22.0	37.0	37.0	70.0	70.0			
1.0	1.2						26.0	26.0	41.0	41.0	74.5	74.5			
1.2	1.4						29.0	29.0	45.0	45.0	77.5	77.5			
1.4	1.6						32.0	32.0	49.0	49.0	80.5	80.5			
1.6	1.8						34.5	34.5	52.0	52.0	83.0	83.0			
1.8	2.1						38.0	38.0	55.0	55.0	86.0	86.0			
2.1	2.4						41.5	41.5	58.0	58.0	88.0	88.0			
2.4	2.7						45.0	45.0	61.0	61.0	90.0	90.0			
2.7	3.0						48.0	48.0	64.0	64.0	91.5	91.5			
3.0	3.5						52.0	52.0	68.0	68.0	93.5	93.5			
3.5	4.0						55.0	55.0	71.0	71.0	95.5	95.5			

4.0	4.5	0.1% (1,000 PPM)	0.1% (1,000 PPM)	1.0% (10,000 PPM)	1.0% (10,000 PPM)	58.0	58.0	74.0	74.0	97.0		Greater Than 97% But Not Greater Than 99.5%	Greater Than 99.5%
4.5	5.0					61.0	61.0	76.0	76.0	97.0			
5.0	5.5					34.0	34.0	78.0	78.0	97.0			
5.5	6.0					66.5	66.5	79.5	79.5	97.0			
6.0	6.5					68.5	68.5	81.0	81.0	97.0			
6.5	7.0					70.5	70.5	82.5	82.5	97.0			
7.0	7.5					72.0	72.0	84.0	84.0	97.0			
7.5	8.0					73.5	73.5	85.0	85.0	97.0			
8.0	8.5					75.0	75.0	86.0	86.0	97.0			
8.5	9.5					77.5	77.5	87.5	87.5	97.0			
9.5	10.5					80.0	80.0	89.0	89.0	97.0			
10.5	11.5					82.0	82.0	90.5	90.5	97.0			
11.5	13.0					84.5	84.5	92.0	92.0	97.0			
13.0	14.7					87.0	87.0	93.0	93.0	97.0			
		RANGE A		RANGE B		RANGE I							
				Greater Than				But Not Greater Than					

4.0	4.5					58.0	58.0	74.0	74.0	97.0				
4.5	5.0					61.0	61.0	76.0	76.0	97.0				
5.0	5.5					34.0	34.0	78.0	78.0	97.0				
14.7		0.1	0.1	1.0	1.0			97						

- (e) The provisions of (c) above shall not apply to a source gas in Range A or B discharged into the outdoor atmosphere through a local exhaust ventilation system whose intake is located within six inches (15 centimeters) of the point at which the source gas is discharged to an internal work space, provided such exhaust ventilation system:
1. Collects at least 60 percent by volume of a Range A source gas or 85 percent by volume of a Range B source gas emitted from the source operation; and
  2. Is equipped with a vapor control system which prevents from being discharged into the outdoor atmosphere at least 85 percent by volume of the VOC collected, on an hourly basis.
- (f) For the purpose of this section:
1. Source gases from a single source operation which are emitted from different vents in different range classifications as determined from Table 16B shall be considered as being discharged from separate source operations for each of which the maximum allowable emission rate must be determined separately.
  2. Source operations normally falling within the category subject to the provisions of this section but used for research or development purposes are exempt from compliance with (c) above provided:
    - i. No more than two times the applicable hourly exclusion rate set forth in Table 16A, Column 3 is emitted in any one hour or over a batch cycle average; and
    - ii. No more than three times the applicable hourly exclusion rate set forth in Table 16A, Column 3 is emitted in any 24-hour period.
  3. The maximum allowable emission rate for source gases physically combined (manifolded) for more than one source operation shall be the sum of the maximum allowable emission rates for the separate source gases as determined under N.J.A.C. 7:27-16.6(c), (h), (i), and (j) and 16.16(c) and (e). The process emission rate shall be used as the maximum allowable emission rate of a separate source gas if it is less than the applicable exclusion rate contained in Table 16A, Column 3;
  4. Until March 28, 1994, the provisions of 3 above may apply to source gases which are mathematically combined, providing approval for such a mathematical combination of sources has been obtained from the Department prior to March 28, 1992.
  5. As of March 28, 1992, the Department shall not approve any mathematical combining of source gases; and
  6. Any approval of a permit or certificate issued by the Department authorizing the demonstration of compliance through a mathematical combination of sources shall expire as of March 28, 1994. Any person who, as a result of this expiration, must alter any equipment or control apparatus in order to operate in conformance with any requirement of this subchapter shall do so in accordance with the following schedule:
    - i. By September 24, 1992, apply to the Department for a permit to carry out the alteration; and
    - ii. By March 28, 1994, comply with the requirements of this chapter and with any provisions or conditions set forth in any alteration permit issued which authorizes the alteration of the equipment or control apparatus.

- (g) Any person responsible for a source operation subject to (c) above shall maintain the following records for each source operation:
1. For each different kind of batch or continuous process for which the source operation is used:
    - i. Record the following information determined in accordance with the Procedure for Using Table 16A in (c) above: the chemical name and vapor pressure of each VOC used, the percent concentration by volume of VOC in the source gas, the volumetric gas flow rate, the source gas range classification, and the maximum allowable emission rate; also record the maximum actual emission rate and maintain the calculations and any test data used to determine the actual emission rate for each process; and, if the source operation is used for more than one process, record the dates on which the source operation is used for each process; or
    - ii. Conduct an analysis of the source operation, which demonstrates that, under worst case operating conditions that maximize the VOC emissions after any control, the VOC emission rate of the source operation is in compliance with this section; and maintain process records sufficient to demonstrate whether the VOC emission rate of the source operation from actual operations does not exceed the VOC emission rate under worst case operating conditions;
  2. For any source operation that has a thermal oxidizer used to control the emission of VOCs, record on a continuous basis or at a frequency approved in writing by the Department the operating temperature at the exit of the combustion chamber and the carbon monoxide concentration in the flue gas emitted to the outdoor atmosphere; also maintain production records sufficient to demonstrate whether the processes conducted generate VOC emissions within the design parameters of the thermal oxidizer;
  3. For any source operation that has a control apparatus using carbon or other adsorptive material used to control the emission of VOC:
    - i. Record on a continuous basis or at a frequency approved in writing by the Department the concentration of the total VOC in the flue gas emitted to the outdoor atmosphere; or
    - ii. Record the date and time the carbon or other adsorptive material used in the control apparatus is regenerated or replaced; also maintain production records sufficient to demonstrate whether the processes conducted generate VOC emissions within the design parameters of the control apparatus and any other information required to document whether the control apparatus is being used and maintained in accordance with the manufacturer's recommended procedures. The manufacturer's recommendations for use and maintenance are also to be readily available on the operating premises, and the person responsible for the source operation shall provide these to the Department upon request; and
  4. Upon the request of the Department and at a frequency specified by the Department, record any other operating parameter relevant to the prevention or control of air contaminant emissions from the source operation or control apparatus.

### **7:27-16.17 Alternative VOC control requirements**

- (a) This section establishes procedures and standards for the establishment of VOC control requirements for any source operation that:
1. Is located at a major VOC facility whose owner or operator seeks approval of a facility-specific VOC control plan that would apply to any source operation or equipment that has the potential to emit at least three pounds per hour (potential batch cycle emission rate of three pounds per hour for batch processes), and:
    - i. Is not regulated elsewhere in this subchapter; and
    - ii. Is not specifically exempted elsewhere in this subchapter because the source operation is within a category that is exempted or because the source operation operates below exclusion rates or threshold levels for control; or
  2. Is regulated under N.J.A.C. 7:27-16.2 through 16.16 or 16.18 through 16.21, whose owner or operator seeks approval of an alternative VOC control plan, which would apply to the equipment or source operation notwithstanding any control requirement or emission limit which would otherwise apply under this subchapter; or
  3. Was issued an alternative or facility-specific VOC control plan prior to (the operative date of these amendments).
- (b) Except as provided at (t) below, the owner or operator of any facility that contains a source operation subject to (a)1 above shall:
1. By October 26, 1994, submit a demonstration for all source operations to the Department at the address listed in (s) below. This demonstration shall include one of the following for each source operation subject to (a)1 above:
    - i. Information, pursuant to (e) below, that demonstrates the source operation is currently served by a control apparatus that collects at least 90 percent by weight of the VOC emissions from the source operation and prevents from being discharged into the outdoor atmosphere at least 90 percent by weight of the VOC collected, that the owner or operator has implemented pollution prevention measures (or a combination of control apparatus and pollution prevention measures) that achieve at least the same level of VOC emission reductions;
    - ii. Information, pursuant to (e) below, that demonstrates by May 31, 1995 the source operation will be served by control apparatus that collects at least 90 percent by weight of the VOC emissions from the source operation and prevents from being discharged into the outdoor atmosphere at least 90 percent by weight of the VOC collected, that the owner or operator will implement pollution prevention measures (or a combination of control apparatus and pollution prevention measures) that achieve at least the same level of VOC emission reductions; or
    - iii. A proposed alternative VOC control plan prepared in accordance with (d) below.
  2. Beginning on May 31, 1995, comply with either (b)2i or ii below:



- i. Use control apparatus that the Department has determined (pursuant to (l) below) will collect at least 90 percent by weight of the VOC emissions from the source operation and prevent from being discharged into the outdoor atmosphere at least 90 percent by weight of the VOC collected; or
  - ii. Operate the facility in accordance with a facility-specific VOC control plan approved by the Department pursuant to (j) below.
- (c) The following requirements shall apply to an owner or operator seeking approval of an alternative VOC control plan pursuant to (a)2 or 3 above:
  1. The owner or operator shall submit to the Department at the address listed in (s) below a proposed alternative VOC control plan prepared in accordance with (d) below. Submission of a proposed alternative VOC control plan does not relieve an owner or operator of any facility, equipment or source operation from complying by the compliance dates in other sections of this subchapter. If and when the Department approves an alternative VOC control plan, the owner or operator shall be subject to the conditions and requirements of the plan and of the Department's approval;
  2. Any alternative VOC control plan approved by the Department after (the operative date of these amendments) shall have a term of 10 years;
  3. Any owner or operator that has an alternative VOC control plan approved prior to (the operative date of these amendments) by the Department and who plans to continue operating with an alternative VOC control plan, shall submit a proposed plan by (90 days after the operative date of these amendments). The owner or operator may request a 60-day extension pursuant to N.J.A.C. 7:27-16.17(q) to submit the proposed plan:
    - i. If the owner or operator submits a proposed plan by (90 days after the operative date of these amendments) or by the date of any extension approved by the Department, the owner or operator's existing alternative VOC control plan shall terminate on the date specified in the implementation schedule of the alternative VOC control plan that the Department approves; and
    - ii. If the owner or operator does not submit a proposed plan by (90 days after the operative date of these amendments), the owner or operator's existing VOC control plan shall terminate on (90 days after the operative date of these amendments);
  4. If the owner or operator of a facility has an approved alternative VOC control plan for a source operation that was issued after (the operative date of these amendments), and intends to modify, alter or reconstruct, such that the VOC emission limit would change, the existing alternative VOC control plan shall terminate on the start date of the modified, altered or reconstructed source operation or item of equipment. If the owner or operator plans to continue operating under an alternative VOC control plan the owner or operator shall apply, and obtain approval of, a new alternative VOC control plan prior to operation of the modified, altered or reconstructed source operation or item of equipment; and

5. If the owner or operator of a facility that has an approved alternative VOC control plan for a source operation that was issued after (the operative date of these amendments), intends to continue operating under a VOC emission limit beyond the expiration date of the existing plan, the owner or operator shall apply for a new alternative VOC control plan at least one year prior to the termination date of the existing plan. The existing plan shall terminate on its termination date or on the date of the Department's final action on the proposed new plan, whichever is later.
- (d) An owner or operator submitting a proposed alternative or facility-specific VOC control plan pursuant to (b)2ii or (c) above shall include the following information in the plan:
1. A list of each source operation at the facility to be included in the plan:
    - i. For a submission pursuant to (b)2ii above, the list shall include each source operation that is not regulated under N.J.A.C. 7:27-16.2 through 16.16, 16.20 or 16.21, and has the potential to emit at least three pounds of VOC per hour; or
    - ii. For a submission pursuant to (c) above, the list shall include each source operation for which the owner or operator seeks an alternative to compliance under N.J.A.C. 7:27-16.2 through 16.16, 16.20 or 16.21;
  2. The following information for each source operation listed pursuant to (d)1 above:
    - i. A brief description of the source operation, and its permit number and any other identifying numbers;
    - ii. The maximum rated capacity of the source operation;
    - iii. The source operation's potential to emit VOC;
    - iv. A list of all VOC control technologies available for use with the source operation;
    - v. A list of all alternative processes and pollution prevention measures that the owner or operator is considering using with or in place of the source operation to reduce VOC emissions;
    - vi. An analysis of the technological feasibility of installing and operating each control technology and process alternative identified in (d)2.iv and v above;
    - vii. For each control technology and process alternative which is technologically feasible to install and operate, an estimate of the cost of installation and annual operation;
    - viii. An estimate of the remaining useful life of the existing source operation;
    - ix. An estimate of the reduction in VOC emissions attainable through the use of each control technology and process alternative identified in (d)2.iv and v above;
    - x. The VOC control technology or technologies or process alternatives which the owner or operator proposes to employ and an implementation schedule;

- xii. A proposed VOC emission limit for the source operation or for the proposed process alternative; and
        - xiii. Proposed recordkeeping requirements sufficient to document the owner or operator's continued compliance with the plan;
      3. Any other information the Department requests that is reasonably necessary to enable it to determine whether the application satisfies the requirements of (j) below; and
      4. A certification signed by the owner or operator, satisfying the requirements of N.J.A.C. 7:27-1.39.
- (e) An owner or operator submitting a demonstration pursuant to (b)1i or ii above shall include the following information in the demonstration:
  1. A list of each source operation at the facility within the scope of (a)1 above;
  2. The following information for each source operation listed pursuant to (e)1 above:
    - i. A brief description of the source operation, and its permit number and any other identifying numbers;
    - ii. The maximum rated capacity of the source operation;
    - iii. The source operation's potential to emit VOC;
    - iv. A description of the control apparatus that serves the source operation (for demonstrations pursuant to (b)1.i above) or that the owner or operator states will serve the source operation (for demonstrations pursuant to (b)1.ii above);
    - v. An analysis of how the control apparatus will collect at least 90 percent by weight of the VOC emissions from the source operation and prevent from being discharged into the outdoor atmosphere at least 90 percent by weight of the VOC collected;
    - vi. A description of any pollution prevention measures that the owner or operator has implemented (for demonstrations pursuant to (b)1.i above) or will implement (for demonstrations pursuant to (b)1.ii above), and analysis of how such measures will control VOC emissions to the extent required under (b)1.i and ii above;
    - vii. A proposed VOC emission limit for the source operation or for the proposed process alternative; and
    - viii. Proposed recordkeeping requirements sufficient to document the owner or operator's continued compliance with the plan;
  3. A complete application for each new permit required and for each change to an existing permit for any equipment or control apparatus to be constructed, altered or installed in connection with the demonstration;

4. Any other information which the Department may request which is reasonably necessary to enable it to determine whether the application satisfies the requirements of (l) below; and
  5. A certification signed by the owner or operator, satisfying the requirements of N.J.A.C. 7:27-1.39.
- (f) Notwithstanding the provisions of (b) above, the owner or operator of a facility that had actual annual emissions of VOC in 1990 and each year thereafter of less than 25 tons, may comply with the requirements of this section by obtaining the Department's approval of a compliance plan and implementing such a plan. To comply in this manner, the owner or operator shall submit a proposed compliance plan pursuant to (f)1 below, obtain the Department's approval of the plan pursuant to (k) below, and implement the plan pursuant to f(2) below.
1. The owner or operator shall submit to the Department a proposed compliance plan that includes the following information, and is certified by the owner or operator pursuant to N.J.A.C. 7:27-1.39:
    - i. Documentation establishing that the actual annual emissions of VOC from the facility in 1990 and each year thereafter were less than 25 tons. If the facility did not commence operations until after 1990, the documentation shall address each year beginning with the year that operations commenced. The documentation shall include records maintained at the facility and any report of actual emissions, including any emission statement, submitted for the facility to the Department for the relevant years;
    - ii. A statement of the owner or operator's intent to reduce the facility's potential to emit VOC to less than 25 tons per year;
    - iii. A description of how the reduction of the facility's potential to emit is to be achieved;
    - iv. Complete applications for amendments to any existing permit or for any new permit required to achieve the reduction of the facility's potential to emit VOC to less than 25 tons per year; and
    - v. Proposed recordkeeping requirements sufficient to document the owner or operator's continued compliance with the plan.
  2. By May 31, 1995, the owner or operator of the facility shall reduce the facility's potential to emit VOC to less than 25 tons per year and achieve compliance with all new or amended permits.
- (g) Within 30 days after receiving a demonstration submitted pursuant to (b)1 above, a proposed facility-specific VOC control plan submitted pursuant to (b)2 above, or a proposed compliance plan submitted pursuant to (f) above, the Department shall notify the owner or operator in writing whether the submission includes sufficient information to commence review. If the submission does not contain sufficient information to complete the review, the Department shall include in the notice a list of the deficiencies, a statement of the additional information required to make the submission complete, and a time by which the owner or operator must make a complete submission. The Department may refrain from reviewing the substance of the submission until the additional information is provided to the Department.

- (h) Failure by an owner or operator to submit the additional information requested by the Department pursuant to (g) above within the time stated in the Department's notification shall constitute a violation of this subchapter. In such case, the Department may deny the submission and pursue its other remedies.
- (i) The Department shall seek comments from the general public before making any final decision to approve or disapprove a proposed alternative or facility-specific VOC control plan. The Department shall publish a Notice of Opportunity for Public Comment in a newspaper for general circulation in the area in which the major VOC facility is located. In addition, the Department shall submit any approved alternative or facility-specific VOC control plan to EPA for approval as a revision to New Jersey's State Implementation Plan.
- (j) Within six months after receiving a complete proposed alternative or facility-specific VOC control plan, the Department shall approve, approve and modify, or disapprove the proposed plan and notify the owner or operator of the decision in writing. The Department shall approve the proposed plan only if it satisfies the following requirements:
  - 1. The proposed plan contains all of the information required under (d) above;
  - 2. The proposed plan considers all control technologies available for the control of VOC emissions from the type of equipment or source operation in question;
  - 3. For any control technologies described in (j)2 above which the owner or operator does not propose to use on the equipment or source operation, the proposed plan demonstrates that the control technology:
    - i. Would be less effective in controlling VOC emissions from the equipment or source operation than the proposed measures;
    - ii. Is unsuitable for use with the source operation, or duplicative of control technology or pollution prevention measure which the plan proposes to use;
    - iii. Would carry costs disproportionate to the improvement in the reduction of the VOC emissions rate which the control technology is likely to achieve, or disproportionately large in comparison to the total reduction in VOC emissions which the control technology is likely to achieve over its useful life; or
    - iv. Would carry costs disproportionate to the costs incurred for the control of VOC emissions from the same type of source operations used by all other persons in the owner or operator's industry;
  - 4. The emission limit proposed for each source operation is the lowest rate which can practicably be achieved at a cost within the limits described in (j)3.iii and iv above;
  - 5. The cost of achieving an additional emission reduction beyond each proposed limit would be disproportionate to the size and environmental impact of that additional emission reduction; and
  - 6. For any pollution prevention or other emission reduction measures proposed by the owner or operator, the proposed plan demonstrates that the measures:
    - i. Result in actual reductions in VOC emissions;
    - ii. Result in VOC emission reductions which are quantifiable; and

iii. Result in VOC emission reductions which are Federally enforceable.

(k) Within six months after receiving a complete compliance plan submitted pursuant to (f) above, the Department shall approve, approve and modify, or disapprove the proposed compliance plan and notify the owner or operator of the decision in writing. The Department shall approve the proposed compliance plan only if it satisfies the following conditions:

1. The compliance plan contains all of the information required under (f) above;
2. The compliance plan demonstrates to the Department's satisfaction that actual emissions of VOC, including fugitive VOC emissions, in 1990 (or the first year of the facility's operations, if operations commenced after 1990) and each year thereafter are less than 25 tons;
3. The proposed recordkeeping requirements are sufficient to enable the Department to verify that the owner or operator is complying with the plan; and
4. The compliance plan demonstrates that the potential to emit VOC will be less than 25 tons if the plan is approved and implemented.

(l) Within six months after receiving a complete demonstration submitted pursuant to (b)1 above, the Department shall approve, approve and modify, or disapprove the demonstration and notify the owner or operator of the decision in writing. The Department shall approve the demonstration only if:

1. The demonstration includes all of the information required under (e) above;
2. To the extent that the demonstration depends upon any construction, alteration or installation and use of any equipment or control apparatus that is not in use as of the time the demonstration was submitted, the owner or operator has obtained any new preconstruction permit and certificate, operating permit, or facility-wide permit, or any change thereto required for the control apparatus, and has agreed to install and use all such control apparatus in accordance with the applicable permit and certificate;
3. To the extent that the demonstration depends upon the implementation of pollution prevention measures that have not been implemented before the time at which the demonstration was submitted, the owner or operator has agreed to implement such measures; and
4. The demonstration establishes to the satisfaction of the Department that the control apparatus will collect at least 90 percent by weight of the VOC emissions from the source operation and prevent from being discharged into the outdoor atmosphere at least 90 percent by weight of the VOC collected, or that the pollution prevention measures will achieve at least the same level of emission reductions.

(m) As a condition of an approval issued under this section, the Department may impose requirements upon the operation of the source operation(s) necessary to minimize any adverse impact upon human health, welfare and the environment.

(n) Before altering any source operation which is included in an approved alternative or facility-specific VOC control plan, approved compliance plan or demonstration (except as authorized or required in the approval), the owner or operator shall:

1. Pursuant to this section, apply for and obtain the Department's approval of an amendment to the approved compliance plan, VOC control plan, or demonstration, reflecting the

proposed alteration. If the owner or operator does not obtain the Department's approval of the amendment before commencing operation of the altered equipment or source operation, the Department may (in addition to assessing penalties under N.J.A.C. 7:27A-3.10) modify the VOC control plan, compliance plan or demonstration to reflect the alteration, in a manner satisfying the criteria set forth in (j), (k) or (l) above, respectively; and

2. Apply for and obtain any preconstruction permit and certificate, operating permit, or facility-wide permit, or change thereto, required for the alteration. Each application must be submitted with the application to amend the VOC control plan.
- (o) The Department will revoke an approval of an alternative VOC control plan by written notice to the holder of the approval if EPA denies approval of the proposed VOC plan as a revision to the State Implementation Plan. The Department may revoke an approval of an alternative or facility-specific VOC control plan, compliance plan or demonstration by written notice to the holder of the approval, if:
1. Any material condition of the approval is violated;
  2. The Department determines that its decision to grant the approval was materially affected by a misstatement or omission of fact in the owner or operator's submission or any supporting documentation; or
  3. The Department determines that continued use of the subject source operation pursuant to the approval poses a potential threat to the public health, welfare or the environment.
  4. For an alternative or facility-specific VOC control plan, EPA denies approval of the plan as a revision to the State Implementation Plan.
- (p) A person may request an adjudicatory hearing in accordance with the procedure at N.J.A.C. 7:27-1.32, if:
1. The Department has denied the person's application for approval under this section for any other reason than an EPA rejection of the SIP revision;
  2. The person seeks to contest one or more conditions of the Department's approval imposed under (m) above; or
  3. The Department has revoked the person's approval pursuant to (o)1 through 3 above.
- (q) After receipt of a written request from an owner or operator, the Department may authorize one non-renewable 60-day extension of the deadline set forth in (c)3 above. Written requests for the extension of a deadline shall be submitted to the address listed below:

Administrator  
Air Compliance and Enforcement  
Department of Environmental Protection  
PO Box 422  
401 East State Street, 4th floor  
Trenton, New Jersey 08625-0422

- (r) Notwithstanding the requirement at (b)2 above, demonstration that a source operation is currently served by control apparatus that meets the criteria set forth in (b)1i above does not

relieve a facility from complying with all existing emission limits and conditions set forth in this chapter.

- (s) The owner or operator submitting a proposed alternative or facility-specific VOC control plan, compliance plan or demonstration shall send it to the Department at the following address:

Chief, Bureau of Operating Permits  
Division of Air Quality  
Department of Environmental Protection  
401 East State Street  
PO Box 027  
Trenton, New Jersey 08625-0027

- (t) If a source operation is covered by a preconstruction permit and operating certificate or an operating permit, either of which requires the source operation to utilize a control apparatus which attains at least 90 percent capture and 90 percent control, the owner or operator need only be in compliance with that permit or certificate to be deemed in compliance with this section; the owner or operator need not submit the demonstration required by (b) above.

#### **7:27-16.18 Leak detection and repair**

- (a) The provisions of this section shall apply to any owner or operator of the following:

1. Any petroleum refinery;
2. Any natural gas/gasoline processing plant;
3. Any synthetic organic chemical or polymer manufacturing facility; or
4. Any chemical plant, other than a synthetic organic chemical or polymer manufacturing facility, which is a major VOC facility.

- (b) The provisions of this section shall apply only to equipment in contact with a substance that:

1. At any petroleum refinery, is 10 percent by weight or greater applicable VOC;
2. At any natural gas/gasoline processing plant, is one percent by weight or greater applicable VOC; or
3. At any synthetic organic chemical or polymer manufacturing facility, is ten percent by weight or greater gaseous applicable VOC or light liquid VOC and the equipment is used to produce greater than 1,100 tons per year (1,000 megagrams per year) of synthetic organic chemicals or polymers, or any combination thereof; or
4. At any chemical plant, other than a synthetic organic chemical or polymer manufacturing facility, is 10 percent by weight or greater applicable VOC, and the total quantity of applicable VOC processed in the equipment is greater than 550 tons per year. The total quantity processed shall include the total annual quantity of applicable VOC charged to all operations for which the equipment is used and does not include any in-process recycled and in-process refluxed applicable VOC and any applicable VOC and any applicable VOC which is generated during the process.



- (c) After the applicable date set forth in Table 18A, no person subject to this section shall cause, suffer, allow or permit a regulated leak of any applicable VOC from any pressure relief device or any other component without moving parts (including, without limitation, flanges, manholes, hatches, instrument connections, sealed connections, joints and fittings), unless one of the following conditions is satisfied:
1. The person first attempts to repair the regulated leak, and completes the repair, as soon as is practicable but not beyond the time allotted for each of those actions in Table 18A;
  2. The leak is an overpressure release discharge from a pressure relief device, for which the pressure relief device is designed, and the release is properly reported pursuant to any applicable law or rule; or
  3. The leak is a discharge to an emergency device (such as a flare) that is designed to combust gases generated during process upsets or emergency events.
- (d) After the applicable date set forth in Table 18B, no person subject to this section shall cause, suffer, allow or permit a regulated leak of any applicable VOC from any agitator or any other component with moving parts (including, without limitation, valves, pumps, compressors, agitators and diaphragms), unless the person first attempts to repair the leak, and completes the repair, as soon as is practicable but not beyond the time allotted for each of those actions in Table 18B.
- (e) In determining the concentration of VOC in a gaseous leak from a component, the applicable VOC shall be measured at a distance within 0.4 inches (one centimeter) of the source in accordance with:
1. The EPA test reference method 21 set forth at 40 CFR part 60 Appendix A, using methane as the reference compound, unless the owner or operator chooses to use a more appropriate calibration gas with an established response factor for the instrument and to record and report the concentration in terms of methane; or
  2. Any other equivalent test method approved in advance in writing by the Department and acceptable to EPA.

**TABLE 18A  
TIME LIMITS FOR LEAK REPAIR OF COMPONENTS WITHOUT MOVING PARTS**

<b>Type of Leak</b>	<b>Maximum Number of Days from Date Leak Was Detected until the First Attempt at Repair</b>	<b>Maximum Number of Days from Date Leak Was Detected until the Repair Is Complete</b>	<b>Date Provision Becomes Effective</b>
Liquid Leak	2	15	July 26, 1994
Gaseous Leak having a concentration of applicable VOC above background concentration equal to or greater than:			
10,000 ppm	5	15	July 26, 1994
1,000 ppm but less than 10,000 ppm	N/A	15	July 26, 1994

**TABLE 18B  
TIME LIMITS FOR LEAK REPAIR OF AGITATORS  
AND OTHER COMPONENTS WITH MOVING PARTS**

<b>Type of Leak</b>	<b>Maximum Number of Days from Date Leak Was Detected until the First Attempt at Repair</b>	<b>Maximum Number of Days from Date Leak Was Detected until the Repair Is Complete</b>	<b>Date Provision Becomes Effective</b>
From an Agitator:			
Liquid Leak	2	15	July 26, 1994
Gaseous Leak having a concentration of applicable VOC greater than 10,000 ppm above background concentration	5	15	July 26, 1994

<b>Type of Leak</b>	<b>Maximum Number of Days from Date Leak Was Detected until the First Attempt at Repair</b>	<b>Maximum Number of Days from Date Leak Was Detected until the Repair Is Complete</b>	<b>Date Provision Becomes Effective</b>
From Other Components with Moving Parts			
Liquid Leak	2	15	July 26, 1994
Gaseous Leak having a concentration of applicable VOC above background concentration equal to or greater than:			
10,000 ppm	5	15	July 26, 1994
5,000 ppm but less than 10,000 ppm	N/A	15	April 1, 1995
1,000 ppm but less than 5,000 ppm	N/A	15	April 1, 1996

- (f) The owner or operator of a petroleum refinery shall develop and implement a leak detection and repair program for any component subject to the provisions of (c) and (d) above. The program shall include the following provisions:
1. The minimum frequency of testing of components shall be as follows:
    - i. Annually, test all agitators, pumps and valves in light liquid service;
    - ii. Quarterly, test all compressors, valves, and pressure relief devices in gaseous service, unless on both of the last two occasions when such testing was conducted at the petroleum refinery the owner or operator determined that:
      - (1) Less than two percent of all the pumps, valves, compressors, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every two quarters; or
      - (2) Less than one percent of all the pumps, valves, compressors, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every four quarters;
    - iii. Monthly, visually inspect all pumps;
    - iv. Semi-annually, visually inspect any other type of component in light liquid service; and
    - v. Test any other type of component in gaseous service within 15 days after the component has been returned to service following having been taken apart or disconnected and reassembled;

2. By no later than five days after a pressure relief device has vented to the atmosphere, the pressure relief device shall be tested;
  3. By no later than five days after repair, any component from which a regulated leak was detected shall be tested;
  4. By July 1, 1982, the initial leak tests required in (f)1.i, (f)1.ii, and (f)1.iii shall be completed, and by May 31, 1995 the initial leak tests required in (f)1.iv shall be completed;
  5. A readily visible identification tag shall be affixed to any component detected to have a regulated leak. The tag must bear a number identifying the component and the date on which the regulated leak was detected. The tag must remain in place until the regulated leak is repaired;
  6. Any component detected to have a regulated leak shall be repaired, in accordance with the schedules set forth in Tables 18A or 18B above, unless a refinery process unit shutdown is necessary to repair the regulated leak. In such case, the regulated leak shall be repaired during the next process unit shutdown and prior to the next start-up;
  7. Notwithstanding paragraphs (f)1 through (f)6 above, a component that does not come in contact with applicable VOC at any time during a specified monitoring period need not be monitored during that period, but, instead, must only be monitored within 30 days of when the component next comes in contact with applicable VOC; and
  8. Notwithstanding paragraphs (f)1 through (f)6 above, equipment that is not operating need not be started up solely for the purpose of monitoring components within a specified monitoring frequency period, but, instead, components of such equipment must be monitored within 30 days of when the equipment is next restarted.
- (g) The owner or operator of any natural gas/gasoline processing plant shall develop and implement a leak detection and repair program for any component subject to the provisions of (c) and (d) above. The program shall include the following provisions:
1. The minimum frequency of testing of components shall be as follows:
    - i. Quarterly, test all pumps, valves, compressors, and pressure relief devices, unless on both of the past two occasions such testing was conducted at any natural gas/gasoline processing plant the owner or operator determined that:
      - (1) Less than two percent of all the pumps, valves, compressors, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every two quarters; or
      - (2) Less than one percent of all the pumps, valves, compressors, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every four quarters;
    - ii. Weekly, visually inspect all pumps; and
    - iii. Once every two years, test any other type of component;
  2. By no later than five days after a pressure relief device has vented to the atmosphere, the pressure relief device shall be tested;

3. By no later than five days after repair, any component from which a regulated leak was detected shall be tested;
  4. By March 31, 1987, the initial leak tests shall be completed;
  5. A readily visible identification tag shall be affixed to any component detected to have a regulated leak. The tag must bear a number identifying the component and the date on which the regulated leak was detected. The tag must remain in place until the regulated leak is repaired;
  6. Any component detected to have a regulated leak shall be repaired, in accordance with the schedules set forth in Tables 18A or 18B above, unless a process unit shutdown is necessary to repair the regulated leak. In such case, the regulated leak shall be repaired during the next process unit shutdown and prior to the next start-up;
  7. Notwithstanding paragraphs (g)1 through 6 above, a component that does not come in contact with applicable VOC at any time during a specified monitoring period need not be monitored during that period, but, instead, must only be monitored within 30 days of when the component next comes in contact with applicable VOC; and
  8. Notwithstanding paragraphs (g)1 through 6 above, equipment that is not operating need not be started up solely for the purpose of monitoring components within a specified monitoring frequency period, but, instead, components of such equipment must be monitored within 30 days of when the equipment is next restarted.
- (h) The owner or operator of a synthetic organic chemical or polymer manufacturing facility subject to this section shall develop and implement a leak detection and repair program for any component subject to the provisions of (c) and (d) above. The program shall include the following provisions:
1. The minimum frequency of testing of components shall be as follows:
    - i. Quarterly test all agitators, pumps and valves in light liquid service, and compressors and pressure relief devices on equipment in gas service, unless on both of the past two occasions such testing was conducted at a synthetic organic chemical or polymer manufacturing facility the owner or operator determined that:
      - (1) Less than two percent of all the compressors, valves, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every two quarters; and
      - (2) Less than one percent of all the compressors, valves, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every four quarters;
    - ii. Weekly, visually inspect all pumps in light liquid service;
    - iii. Semi-annually, visually inspect any other type of component in light liquid service; and
    - iv. Test any type of component in gaseous service within 15 days after the component has been returned to service following having been taken apart or disconnected and reassembled;

2. By no later than five days after a pressure relief device has vented to the atmosphere, the pressure relief device shall be tested;
  3. By no later than five days after repair, any component from which a regulated leak was detected shall be tested;
  4. By March 31, 1987, the initial leak tests pursuant to (h)1.i and (h)1.ii above shall be completed, and by May 31, 1995, the initial leak tests required pursuant to (h)1.iii above shall be completed;
  5. A readily visible identification tag shall be affixed to any component detected to have a regulated leak. The tag must bear a number identifying the component and the date on which the regulated leak was detected. The tag must remain in place until the regulated leak is repaired;
  6. Any leaking component detected to have a regulated leak shall be repaired, in accordance with the schedules set forth in Tables 18A or 18B above, unless a process unit shutdown is necessary to repair the regulated leak. In such case, the regulated leak shall be repaired during the next process unit shutdown and prior to the next start-up;
  7. Notwithstanding paragraphs (h)1 through 6 above, a component that does not come in contact with applicable VOC at any time during a specified monitoring period need not be monitored during that period, but, instead, must only be monitored within 30 days of when the component next comes in contact with applicable VOC; and
  8. Notwithstanding paragraphs (h)1 through 6 above, equipment that is not operating need not be started up solely for the purpose of monitoring components within a specified monitoring frequency period, but, instead, components of such equipment must be monitored within 30 days of when the equipment is next restarted.
- (i) The owner or operator of a chemical plant that is a major VOC facility shall develop and implement a leak detection and repair program for any equipment subject to the provisions of (c) and (d) above if such equipment is not subject to the provisions of (f), (g), or (h) above. The program shall include the following provisions:
1. The minimum frequency of testing of components shall be as follows:
    - i. Annually, test all agitators, pumps, valves, and pressure relief devices in light liquid service;
    - ii. Quarterly, test all compressors, valves, and pressure relief devices in gas service, unless on both of the past two occasions such testing was conducted at a chemical plant the owner or operator determined that:
      - (1) Less than two percent of all the compressors, valves, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every two quarters; and
      - (2) Less than one percent of all the compressors, valves, and pressure relief devices tested had a regulated leak. In such an instance the owner or operator may elect to conduct such testing once every four quarters;
    - iii. Monthly, visually inspect all single mechanical seals and packed seal pumps;

- iv. Every six months, visually inspect any other type of component in light liquid service; and
  - v. Test any other type of component in gaseous service within 15 days after the component has been returned to service following having been taken apart or disconnected and reassembled;
2. By no later than five days after a pressure relief device has vented to the atmosphere, the pressure relief device shall be tested;
  3. By no later than five days after repair, any component from which a regulated leak was detected shall be retested;
  4. By May 31, 1995, the initial leak tests shall be initiated at the frequency required by (i)1i through (i)1v above;
  5. A readily visible identification tag shall be affixed to any component detected to have a regulated leak. The tag must bear a number identifying the component and the date on which the regulated leak was detected. The tag must remain in place until the regulated leak is repaired;
  6. Any component detected to have a regulated leak shall be repaired, in accordance with the schedules set forth in Tables 18A or 18B above, unless a process unit shutdown is necessary to repair the regulated leak. In such case, the regulated leak shall be repaired during the next process unit shutdown and prior to the next start-up;
  7. Notwithstanding paragraphs (i)1 through 6 above, a component that does not come in contact with applicable VOC at any time during a specified monitoring period need not be monitored during that period, but, instead, must only be monitored within 30 days of when the component next comes in contact with applicable VOC; and
  8. Notwithstanding paragraphs (i)1 through 6 above, equipment that is not operating need not be started up solely for the purpose of monitoring components within a specified monitoring frequency period, but, instead, components of such equipment must be monitored within 30 days of when the equipment is next restarted.
- (j) Any owner or operator of a petroleum refinery subject to (f) above shall comply with (j)1 below beginning July 1, 1982, and shall comply with (j)2 below beginning October 1, 1982. Any owner or operator of a natural gas/gasoline processing plant or synthetic organic chemical/polymer manufacturing facility subject to (g) or (h) above, respectively, shall comply with (j)1 below beginning April 1, 1987, and shall comply with (j)2 below beginning July 1, 1987. Any owner or operator of a chemical plant subject to (i) above shall comply with (j)1 and 2 below beginning May 31, 1995:
1. A log of information about components detected to have regulated leaks shall be maintained. The log shall be retained for a minimum of five years and be made available immediately upon request by the Department. The log shall contain the following data for each instance in which a component is detected to have a regulated leak:
    - i. The name of the process unit where the component detected to have a regulated leak is located;
    - ii. The type of component;

- iii. The tag identification number of the component;
  - iv. The date on which the regulated leak was detected;
  - v. The date on which the component detected to have a regulated leak was repaired;
  - vi. The date and instrument reading of the retest procedure after a component detected to have a regulated leak is repaired;
  - vii. A record of the calibration of the monitoring instrument;
  - viii. An identification of those regulated leaks that cannot be repaired without a process unit shutdown; and
  - ix. The total number of components monitored and the total number of components detected to have a regulated leak.
2. Within 30 days following the last day of every third month, a report shall be submitted to the Department's regional enforcement office that lists all components detected to have a regulated leak during the previous three calendar months that have not been repaired within the applicable time limits set forth in Tables 18A and 18B, all components detected to have a regulated leak whose repair is awaiting a process unit shutdown, all components not tested because they were not in contact with applicable VOC or not in operation during their specified monitoring period, the total number of components inspected, and the total number of components detected to have a regulated leak.
- (k) Components that are insulated, encased, or enclosed may be tested for leaks at a distance within 0.4 inches (one centimeter) of the surface of the insulation, encasement, or enclosure.
  - (l) Notwithstanding the provisions of (f), (g), (h), and (i) above, difficult to monitor components installed prior to May 31, 1995, are exempt from quarterly testing requirements, and instead such testing shall be conducted on an annual basis.
  - (m) The reduced testing provisions pursuant to (l) above shall not apply to components installed on or after May 31, 1995, at a facility subject to this section. Instead, all such components installed on or after May 31, 1995 shall be tested in accordance with the other provisions of this section.
  - (n) The provisions of (f), (g), (h), and (i) above shall not apply to a pressure relief device which is connected to an operating flare or to a vapor recovery device, a storage tank valve, a valve that is not externally regulated, or a valve or other component in vacuum service.
  - (o) No owner or operator of any facility listed in (o)1 through 4 below shall install or operate a valve, except for a safety pressure relief valve, at the end of a pipe or line containing applicable VOC unless the pipe or line is sealed with a second valve, a blind flange, a plug or a cap. The sealing device may be removed only when a sample is being taken, during actual use in the process, or during maintenance. A fill line that is used to regularly fill containers is considered to be in actual use in the process for the purpose of this provision. Owners and operators of the following types of facilities are subject to this prohibition, beginning on the dates set forth below:
    1. Any petroleum refinery subject to (f) above, after July 1, 1982;
    2. Any natural gas/gasoline processing plant subject to (g) above, after July 1, 1987;



3. Any synthetic organic chemical or polymer manufacturing facility subject to (h) above, after July 1, 1987; or
  4. Any chemical plant subject to (i) above, beginning May 31, 1995.
- (p) The provisions of (f), (g), (h), and (i) above shall not apply to the following components:
1. A component which is primarily used in a laboratory operation or research facility;
  2. A component that cannot be tested without immediate danger to the personnel conducting the test, or a component that cannot be tested because it is not accessible, and cannot practicably be made accessible, for conducting the test. For such components, the owner or operator shall document in writing:
    - i. The reason that the component cannot be safely tested, or cannot practicably be made accessible for testing with monitoring equipment; and
    - ii. Under which circumstances and by what method, if any, the component can be tested. Further, when those circumstances do arise, the owner or operator shall cause testing that complies with this section to be performed and shall respond to the results of that testing as this section otherwise requires;
  3. A pump that is inherently sealless by design, for example, a magnetic drive, canned motor, or diaphragm pump;
  4. A pump equipped with dual mechanical seals, provided that the barrier fluid is not an applicable VOC and that:
    - i. Each dual mechanical seal is operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure;
    - ii. Each dual mechanical seal is equipped with a barrier fluid degassing reservoir that is connected by a closed-vent system to a VOC control apparatus;
    - iii. Each dual mechanical seal is equipped with a closed-loop system that purges the barrier fluid into a process stream; or
    - iv. Each barrier fluid system is equipped with a device that provides detection for the failure of the seal system, the barrier fluid system, or both;
  5. A leakless design Bellows type valve; and
  6. Process equipment enclosed in such a manner that all emissions from any component with a leak is vented through a system that routes those emissions to a controlled emission point, provided that:
    - i. The enclosure is maintained under negative pressure at all times while the process unit is in operation; or
    - ii. The potential points of leakage from the enclosure are subjected to the same leak detection and repair requirements as the components would be if they were not enclosed.
- (q) Notwithstanding the other subsections of this section, the owner or operator of a facility subject

to the provisions of this section may use pressure testing with gas or liquid as an alternative method to comply with leak detection requirements.

1. If the pressure testing alternative is used for continuous processing equipment, the frequency of pressure testing shall be no less than the frequency set forth in (f), (g), (h) and (i).
  2. If the pressure testing alternative is used for batch product processes:
    - i. Each time batch processing equipment is reconfigured, the batch product-process equipment shall be pressure tested for leaks before applicable VOC is first fed into the equipment and the equipment is placed in applicable VOC service, provided, however, that when the seal is broken between two items of equipment or when equipment is changed in a section of the batch product-processing equipment train, pressure testing is required only for the new or disturbed equipment; and
    - ii. Notwithstanding (q)2i above, each batch product process that operates in applicable VOC service during a calendar year shall be pressure tested at least once during the calendar year.
  3. When pressure testing with a gas, the following procedures shall be used:
    - i. The product-process equipment shall be pressurized with a gas to the operating pressure of the equipment, but the equipment shall not be tested at a pressure greater than the pressure setting of the lowest relief valve setting in the portion of the equipment being tested;
    - ii. Once the test pressure is obtained, the gas source shall be shut off;
    - iii. The test shall continue for not less than 15 minutes unless it can be determined in a shorter period of time that the allowable rate of pressure drop is exceeded; and
    - iv. The pressure shall be measured at the beginning and at the end of the test period using a pressure measurement device (gauge, manometer, or equivalent) which has a precision of plus or minus 2.5 mm Hg. If the rate of pressure change is greater than one pound per square inch per hour, or if there is visible, audible or olfactory evidence of fluid loss, a regulated leak is detected.
  4. When pressure testing with a liquid, the following procedures shall be used:
    - i. The product-process equipment shall be filled with the test liquid. Once the equipment is filled, the liquid source shall be shut off,
    - ii. The test shall be conducted for a period of at least 60 minutes, unless it can be determined in a shorter period of time that there is a regulated leak; and
    - iii. Each seal in the equipment being tested shall be inspected for indications of fluid loss. If there are any indications of liquid dripping or of fluid loss a regulated leak is detected.
- (r) The owner or operator of a facility subject to the provisions of this section is exempt from the requirement to repair any regulated leak within the applicable time limits set forth in this section, so long as no applicable VOC is fed to the source operation of which the component is a part

until testing confirms that the leak has successfully been repaired.

- (s) An affirmative defense to liability for a violation of this section's requirements regarding time limits for repairs shall be available to any person who can demonstrate that:
  - 1. Failure to comply with those time limits was caused by an inability to obtain the necessary parts through the exercise of due diligence; and
  - 2. Keeping the necessary part in stock or otherwise available would have been technically or economically unreasonable; and
  - 3. The parts were obtained and the repairs were made as quickly as the exercise of due diligence permitted.
- (t) A leak shall not constitute a violation of this section so long as the component from which it appears has been monitored or inspected in accordance with this section and so long as the leak has been repaired in accordance with this section.

#### **7:27-16.19 Application of cutback and emulsified asphalts**

- (a) On or after April 16, 2009, no person shall use or apply, during the period from April 16 through October 14, cutback asphalt or emulsified asphalt, unless:
  - 1. The asphalt contains no greater than 0.1 percent VOC by weight; or
  - 2. The asphalt produces no greater than 6.0 milliliters of oil distillate, in accordance with ASTM Method D244, Standard Test Methods and Practices for Emulsified Asphalts, or AASHTO T 59, Standard Method of Test for Testing Emulsified Asphalts, both as supplemented or amended and incorporated herein by reference. ASTM Method D244 is available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, Pennsylvania 19428-2959, or from its website [www.astm.org](http://www.astm.org). AASHTO T 59 is available from the American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street N.W., Suite 249, Washington, DC 20001, or from its website [www.transportation.org](http://www.transportation.org).
- (b) On or after April 16, 2009, no person shall store cutback asphalt or emulsified asphalt during the period from April 16 through October 14 that does not meet the requirements at (a) above, unless the cutback asphalt or emulsified asphalt is stored in a sealed container.

#### **7:27-16.20 Petroleum solvent dry cleaning operations**

- (a) No person shall cause, suffer, allow, or permit any VOC emissions to the outdoor atmosphere from a petroleum solvent dry cleaning dryer unless such dryer is:
  - 1. Equipped with a vapor control system which prevents VOC emissions from exceeding 7.7 pounds (3.5 kilograms) per 220 pounds (100 kilograms) dry weight of articles dry

- cleaned; or
2. A solvent recovery dryer operated in a manner such that the dryer remains closed and the recovery phase continues until a final recovered solvent flow rate of 0.013 gallons (50 milliliters) per minute is attained.
- (b) No person shall cause, suffer, allow, or permit any VOC emissions to the outdoor atmosphere from a petroleum solvent filtration system unless:
1. The VOC content in all filtration wastes is reduced to no more than 2.2 pounds (1.0 kilograms) per 220 pounds (100 kilograms) dry weight of articles dry cleaned, before disposal, and exposure to the outdoor atmosphere; or
  2. The system is a cartridge filtration system operated such that the filter cartridges are drained in their sealed housings for eight hours or longer before their removal.
- (c) No owner or operator of a petroleum solvent dry cleaning facility shall cause, suffer, allow, or permit any VOC to be emitted into the outdoor atmosphere from:
1. Visibly leaking equipment including, but not limited to, washers, dryers, solvent filters, settling tanks, and vacuum stills; and
  2. Containers of VOC or VOC-laden waste standing open to the outdoor atmosphere.
- (d) The provisions of (a) above shall not apply to petroleum solvent dry cleaning facilities that consume less than 15,000 gallons (56,775 liters) of petroleum solvent annually.
- (e) Any person subject to the provisions of (a) above shall comply with the following schedule:
1. By February 2, 1987, a plan shall be submitted to the Department for approval describing the measures which will be applied in order to achieve compliance. The plan submittal shall include completed applications for all preconstruction permits and operating certificates required by N.J.A.C. 7:27-8;
  2. By May 1, 1987, construction or installation of equipment and control apparatus in accordance with the approved plan shall commence; and
  3. By October 31, 1987, compliance with this section shall be achieved.
- (f) The total amount of any VOC consumed by a petroleum solvent dry cleaning operation in each calendar year shall not exceed 9.9 pounds per 220 pounds of dry weight of articles cleaned.
- (g) Any person responsible for the emission of any VOC from a petroleum solvent dry cleaning operation subject to this section shall maintain a monthly record setting forth the chemical name of the VOC used in the operation, the volume of VOC consumed in the operation, and the dry weight of articles cleaned.

#### **7:27-16.21 Natural gas pipelines**

- (a) The owner or operator of any natural gas pipeline shall by October 26, 1994 prepare a Control Measure Plan that shall:

1. Identify each control technology or procedure available to the owner or operator for achieving reductions in VOC emissions from a blowdown event. Such control technology or procedures may include, without limitation, pipeline pressure reductions, the use of mobile compressors for recompressing, and the use of control apparatus; and
  2. Identify in detail the criteria that the owner or operator will use to select the control technology or procedure, or combination thereof, that will achieve the greatest reductions in VOC reasonably achievable for each blowdown event.
- (b) The owner or operator of any natural gas pipeline shall by May 31, 1995 achieve some reduction in VOC emissions from each blowdown event and shall implement the control technologies or procedures that the Control Measure Plan indicates would be appropriate for each blowdown event.
- (c) On or before March 1 of each year beginning in 1996, the owner or operator of each natural gas pipeline shall submit a report to the Chief, Bureau Field Operations setting forth the location, date and duration of each blowdown event, a description of the emissions reduction procedures and technology used, and a quantification of the amount of VOC emission reductions achieved for each event.
- (d) The owner or operator of any natural gas pipeline subject to (a) above shall retain the Control Measure Plan at the office having operating responsibility for the section of pipeline for which the blowdown event will occur and shall provide a copy of such plan to the Department within three days of receipt of a written request from the Department.
- (e) If after reviewing a Control Measure Plan, the Department determines that it fails to satisfy the requirements set forth in (a) above, the Department shall notify the owner or operator that it has 30 days to submit to the Department appropriate amendments to its plan. Failure to do so shall constitute a violation of this section. However, an owner or operator may request an adjudicatory hearing regarding the Department's determination in accordance with the procedure at N.J.A.C. 7:27-1.32.
- (f) The Department may require amendments to a Control Measure Plan if:
1. The Plan does not contain all of the information required under (a) above;
  2. The Plan does not consider all control technology and procedures used or considered for use by other persons in the owner or operator's industry, taking into account the potential for the creation of a safety hazard or the potential for unreasonable interference with enjoyment of life and property;
  3. The Plan would be ineffective in controlling VOC emissions during blowdown events;
  4. The emission reductions being achieved are not the greatest reductions which can be practicably achieved at reasonable costs;
  5. Implementation of the plan results or would result in any violation of law or regulation;  
or
  6. EPA denies approval of the proposed Control Measure Plan as a revision to the State Implementation Plan.
- (g) After receipt of a written request from an owner or operator for an extension of the deadline set forth in (a) above, the Department may authorize a 60-day renewable extension upon showing of

good cause. Such extension may be renewed by the Department upon the written request of the owner or operator. Approval of such an extension shall not constitute approval of extension of the May 31, 1995 deadline established in (b) above. Written requests for the extension of a deadline submitted pursuant to this subsection shall be addressed to:

Assistant Director, Air & Environmental Quality Enforcement  
Division of Enforcement Field Operations  
Department of Environmental Protection  
PO Box 422  
401 East State Street, 4th Floor  
Trenton, New Jersey 08625-0422

#### **7:27-16.22 Emission information, recordkeeping and testing**

- (a) Any person subject to any record keeping provision of this subchapter shall maintain the required records for a period of no less than five years and shall make those records available upon request of the Department or the EPA, or any duly authorized representative of the Department or the EPA.
- (b) Any person who owns or operates a source operation subject to any record keeping requirement set forth in this subchapter may submit a request in writing to the Department for approval to maintain records other than those specified at N.J.A.C. 7:27-16.2(s), 16.3(s), 16.4(o), 16.5(j), 16.6(l), 16.7(m) and (n), 16.13(c), 16.16(g), 16.18(j), 16.20(g) or 16.21(c). The Department and EPA may approve any such request if the person demonstrates to the satisfaction of the Department and EPA that the alternate records to be maintained are at least as effective in documenting that the source operation is operating in compliance with the applicable requirements.
- (c) Any person responsible for the emission of VOC shall, upon request of the Department, the EPA, or any duly authorized representative of the Department or the EPA, provide information relating to the location, rate, duration, composition, and properties of the effluent and such other information as the Department may prescribe.
- (d) Any person responsible for the emission of VOC shall, upon request of the Department, the EPA, or any duly authorized representative of the Department or the EPA, provide facilities and necessary equipment for determining the quantity and identity of any VOC emitted into the outdoor atmosphere and shall conduct such testing using N.J.A.C 7:27B-3 or another method approved by the Department and the EPA. Test data shall be recorded in a permanent log at such time intervals as specified by the Department and shall be maintained for a period of not less than two years and shall be available for review by the Department, the EPA, or any duly authorized representative of the Department or the EPA.
- (e) Any person responsible for the emission of VOC shall, upon request of the Department, provide sampling facilities and testing facilities exclusive of instrumentation and sensing devices as may be necessary for the Department to determine the nature and quantity of the VOC being emitted into the outdoor atmosphere. During such testing by the Department, the equipment and all components connected, or attached to, or serving the equipment shall be used and operated under normal routine operating conditions or under such other conditions as may be requested by the Department. The facilities may be either permanent or temporary, at the discretion of the person responsible for their provision, and shall conform to all applicable laws and regulations concerning safe construction and safe practice.
- (f) All testing and monitoring pursuant to the provisions of this subchapter shall be conducted using

N.J.A.C. 7:27B-3 or another method approved in advance by the Department and acceptable to EPA.

- (g) Hourly emission limits apply to any consecutive 60 minute period, and testing performed to verify compliance shall be based on a 60 minute period during which the equipment or control apparatus is used and operated under conditions acceptable to the Department and consistent with the operational parameters and limits set forth in any permit or certificate in effect. If circumstances require that test periods be less than, or more than 60 minutes (such as when an operational duration is less than 60 minutes or when detectability limits are approached for low concentration gas streams), the Department may require different test periods in its review and approval of test protocols.
- (h) (Reserved)
- (i) Any person who reports information to the Department pursuant to the requirements set forth at N.J.A.C. 7:27-16.2(s), 16.3(s), 16.7(m) and (n), 16.16(g), or 16.20(g) may assert a confidentiality claim for that information in accordance with the procedures set forth at N.J.A.C. 7:27-1.6 through 1.30.

### **7:27-16.23 Procedures for demonstrating compliance**

- (a) The owner or operator of equipment or a source operation subject to N.J.A.C. 7:27-16.8, 16.9, 16.10, 16.11 or 16.13 that is subject to an emission limit under this subchapter shall demonstrate compliance with the emission limit pursuant to (a)1 below if a continuous emissions monitoring system has been installed on the equipment or source operation for the air contaminant in question, or pursuant to (a)2 below if no such system has been installed for the air contaminant.
  - 1. With respect to an emission limit for any air contaminant monitored by a continuous emissions monitoring system installed on the equipment or source operation, compliance with the limit is based upon the average of emissions over one calendar day, not including periods of equipment downtime.
  - 2. With respect to an emission limit for any air contaminant that is not monitored by a continuous emissions monitoring system installed on the equipment or source operation, compliance with the limit is based upon the average of three one-hour tests, each performed over a consecutive 60-minute period specified by the Department and performed in compliance with N.J.A.C. 7:27-16.22.
- (b) For any equipment or source operation subject to (a) above which was in operation before January 1, 1995, the owner or operator shall demonstrate compliance with this subchapter in accordance with (a)1 or 2 above by May 31, 1996, and thereafter at the frequency set forth in the permit or certificate for such equipment or source operation.
- (c) For any equipment or source operation subject to (a) above which commences operations or is altered after January 1, 1995, the owner or operator shall demonstrate compliance with this subchapter in accordance with (a) or (b) above within 180 days from the date on which the source operation commences operation, and thereafter at the frequency set forth in the permit or certificate for such equipment or source operation.
- (d) An exceedance of any applicable VOC or CO emission limit set forth in this subchapter, determined through testing or monitoring performed pursuant to (a) or (b) above or otherwise, is a violation of this subchapter.

**7:27-16.24 (Reserved)**

**7:27-16.25 (Reserved)**

**7:27-16.26 Variances**

- (a) Whenever a person responsible for the emission of any VOC believes that advances in the art of control for the kind and amount of VOC emitted have not developed to a degree which would enable the requirements of this subchapter to be attained, such person may apply to the Department in writing for a variance, setting forth any reason and justification therefor.
- (b) Any person submitting an application for a variance to the Department is subject to the certification requirements set forth at N.J.A.C. 7:27-1.39.
- (c) The Department may issue a variance which shall be valid for a period not to exceed three consecutive years from the date of issuance and may be renewed upon application to the Department setting forth reasons and justifications for its continuation.
- (d) Variances issued under the provisions of this section shall be conditional upon:
  - 1. Compliance with any requirements which the Department sets forth as conditions of approval; and
  - 2. Approval by EPA as a revision to the State Implementation Plan.
- (e) Variances may be revoked at any time at the discretion of the Department.
- (f) Any applicant aggrieved by the denial or revocation by the Department of a variance allowed under the provisions of this section may request an adjudicatory hearing pursuant to N.J.A.C. 7:27-1.32.

**7:27-16.27 Exceptions**

- (a) The provisions of this subchapter shall not apply to any stationary vessel or delivery vessel maintained under a pressure greater than one atmosphere provided that any vent serving such vessel has the sole function of relieving pressure under abnormal emergency conditions.
- (b) The provisions of this subchapter shall not apply to the emissions of VOC from the following source operations:
  - 1. Natural gas pipelines that are not major VOC facilities, with the exception of blowdown events as set forth in N.J.A.C. 7:27-16.21; and
  - 2. Open burning.



## APPENDIX I

### CHEMICALS DEFINING SYNTHETIC ORGANIC CHEMICAL AND POLYMER MANUFACTURING

CAS #	CHEMICAL
105-57-7	Acetal
75-07-0	Acetaldehyde
107-89-1	Acetaldol
60-35-5	Acetamide
103-84-4	Acetanilide
64-19-7	Acetic acid
108-24-7	Acetic anhydride
67-64-1	Acetone
75-86-5	Acetone cyanohydrin
75-05-8	Acetonitrile
96-86-2	Acetophenone
75-36-5	Acetyl chloride
74-86-2	Acetylene
107-02-8	Acrolein
79-06-1	Acrylamide
79-10-7	Acrylic acid
107-13-1	Acrylonitrile
124-04-9	Adipic acid
111-69-3	Adiponitrile
++	Alkyl naphthalenes
107-18-6	Allyl alcohol
107-05-1	Allyl chloride
1321-11-5	Aminobenzoic acid
111-41-1	Aminoethylethanolamine
123-30-8	p-Aminophenol
628-63-7, 123-92-2	Amyl acetates
71-41-0, +	Amyl alcohols
110-58-7	Amyl amine
543-59-9	Amyl chloride
110-66-7, +	Amyl mercaptans
1322-06-1	Amyl phenol
62-53-3	Aniline
142-04-1	Aniline hydrochloride
29191-52-4	Anisidine
100-66-3	Anisole
118-92-3	Anthranilic acid
84-65-1	Anthraquinone
100-52-7	Benzaldehyde
55-21-0	Benzamide
71-43-2	Benzene
98-48-6	Benzenedisulfonic acid
98-11-3	Benzenesulfonic acid
134-81-6	Benzil
76-93-7	Benzilic acid
65-85-0	Benzoic acid
119-53-9	Benzoin

100-47-0	Benzonitrile
119-61-9	Benzophenone
98-07-7	Benzotrichloride
98-88-4	Benzoyl chloride
100-51-6	Benzyl alcohol
100-46-9	Benzylamine
120-51-4	Benzyl benzoate
100-44-7	Benzyl chloride
98-87-3	Benzal chloride
92-52-4	Biphenyl
80-05-7	Bisphenol A
108-86-1	Bromobenzene
27497-51-4	Bromonaphthalene
106-99-0	Butadiene
106-98-9	1-butene
123-86-4	n-butyl acetate
141-32-2	n-butyl acrylate
71-36-3	n-butyl alcohol
78-92-2	s-butyl alcohol
75-65-0	t-butyl alcohol
109-73-9	n-butylamine
13952-84-6	s-butylamine
75-64-9	t-butylamine
98-73-7	4-tert-butyl benzoic acid
107-88-0	1,3-butylene glycol
123-72-8	n-butyraldehyde
107-92-6	Butyric acid
106-31-0	Butyric anhydride
109-74-0	Butyronitrile
105-60-2	Caprolactam
75-15-50	Carbon disulfide
558-13-4	Carbon tetrabromide
56-23-5	Carbon tetrachloride
9004-35-7	Cellulose acetate
79-11-8	Chloroacetic acid
108-42-9	m-chloroaniline
95-51-2	o-chloroaniline
106-47-8	p-chloroaniline
35913-09-8	Chlorobenzaldehyde
108-90-7	Chlorobenzene
+	Chlorobenzoic acid
+	Chlorobenzotrichloride
1321-03-5	Chlorobenzoyl chloride
75-45-6	Chlorodifluoroethane
25497-29-4	Chlorodifluoromethane
67-66-3	Chloroform
25586-43-0	Chloronaphthalene
88-73-3	o-chloronitrobenzene
100-00-5	p-chloronitrobenzene
25167-80-0	Chlorophenols
126-99-8	Chloroprene
7790-94-5	Chlorosulfonic acid
108-41-8	m-chlorotoluene
95-49-8	o-chlorotoluene

106-43-4	p-chlorotoluene
75-72-9	Chlorotrifluoromethane
108-39-4	m-cresol
95-48-7	o-cresol
106-44-5	p-cresol
1319-77-3	Mixed cresols
1319-77-3	Cresylic acid
4170-30-0	Crotonaldehyde
3724-65-0	Crotonic acid
98-82-8	Cumene
80-15-9	Cumene hydroperoxide
372-09-8	Cyanoacetic acid
506-77-4	Cyanogen chloride
108-80-5	Cyanuric acid
108-77-0	Cyanuric chloride
110-82-7	Cyclohexane
108-93-0	Cyclohexanol
108-94-1	Cyclohexanone
110-83-8	Cyclohexene
108-91-8	Cyclohexylamine
111-78-4	Cyclooctadiene
112-30-1	Decanol
123-42-2	Diacetone alcohol
27576-04-1	Diaminobenzoic acid
+	Dichloroaniline
541-73-1	m-dichlorobenzene
95-50-1	o-dichlorobenzene
106-46-7	p-dichlorobenzene
75-71-8	Dichlorodifluoromethane
107-06-2	1,2-dichloroethane (EDC)
111-44-4	Dichloroethyl ether
96-23-1	Dichlorohydrin
26952-23-8	Dichloropropene
101-83-7	Dicyclohexylamine
109-89-7	Diethylamine
111-46-6	Diethylene glycol
112-36-7	Diethylene glycol diethyl ether
111-96-6	Diethylene glycol dimethyl ether
112-34-5	Diethylene glycol monobutyl ether
124-17-4	Diethylene glycol monobutyl ether acetate
111-90-0	Diethylene glycol monoethyl ether
112-15-2	Diethylene glycol monoethyl ether acetate
111-77-3	Diethylene glycol monomethyl ether
64-67-5	Diethyl sulfate
75-37-6	Difluoroethane
25167-70-8	Diisobutylene
26761-40-0	Diisodecyl phthalate
27554-26-3	Diisooctyl phthalate
674-82-8	Diketene
124-40-3	Dimethylamine
121-69-7	N,N-dimethylaniline
115-10-6	N,N-dimethyl ether
68-12-2	N,N-dimethylformamide
57-14-7	Dimethylhydrazine

77-78-1	Dimethyl sulfate
75-18-3	Dimethyl sulfide
67-68-5	Dimethyl sulfoxide
120-61-6	Dimethyl terephthalate
99-34-3	3,5-dinitrobenzoic acid
51-28-5	2,4-dinitrophenol
25321-14-6	Dinitrotoluene
123-91-1	Dioxane
646-06-0	Dioxolane
122-39-4	Diphenylamine
101-84-8	Diphenyl oxide
102-08-9	Diphenyl thiourea
25265-71-8	Dipropylene glycol
25378-22-7	Dodecene
28675-17-4	Dodecylaniline
27193-86-8	Dodecylphenol
106-89-8	Epichlorohydrin
64-17-5	Ethanol
+	Ethanolamines
141-78-6	Ethyl acetate
141-97-9	Ethyl acetoacetate
140-88-5	Ethyl acrylate
75-04-7	Ethylamine
100-41-4	Ethylbenzene
74-96-4	Ethyl bromide
9004-57-3	Ethylcellulose
75-00-3	Ethyl chloride
105-39-5	Ethyl chloroacetate
105-56-6	Ethylcyanoacetate
74-85-1	Ethylene
96-49-1	Ethylene carbonate
107-07-3	Ethylene chlorohydrin
107-15-3	Ethylenediamine
106-93-4	Ethylene dibromide
107-21-1	Ethylene glycol
111-55-7	Ethylene glycol diacetate
110-71-4	Ethylene glycol dimethyl ether
111-76-2	Ethylene glycol monobutyl ether
112-07-2	Ethylene glycol monobutyl ether acetate
110-80-5	Ethylene glycol monoethyl ether
111-15-9	Ethylene glycol monoethyl ether acetate
109-86-4	Ethylene glycol monomethyl ether
110-49-6	Ethylene glycol monomethyl ether acetate
122-99-6	Ethylene glycol monophenyl ether
2807-30-9	Ethylene glycol monopropyl ether
75-21-8	Ethylene oxide
60-29-7	Ethyl ether
104-76-7	2-ethylhexanol
122-51-0	Ethyl orthoformate
95-92-1	Ethyl oxalate
41892-71-1	Ethyl sodium oxalacetate
50-00-0	Formaldehyde
75-12-7	Formamide
64-18-6	Formic acid

110-17-8	Fumaric acid
98-01-1	Furfural
56-81-5	Glycerol
26545-73-7	Glycerol dichlorohydrin
25791-96-2	Glycerol triether
56-40-6	Glycine
107-22-2	Glyoxal
118-74-1	Hexachlorobenzene
67-72-1	Hexachloroethane
36653-82-4	Hexadecanol
124-09-4	Hexamethylenediamine
629-11-8	Hexamethylene glycol
100-97-0	Hexamethylenetetramine
74-90-8	Hydrogen cyanide
123-31-9	Hydroquinone
99-06-9	p-hydroxybenzoic acid
26760-64-5	Isoamylene
78-83-1	Isobutanol
110-19-0	Isobutyl acetate
115-11-7	Isobutylene
78-84-2	Isobutyraldehyde
79-31-2	Isobutyric acid
25339-17-7	Isodecanol
26952-21-6	Isooctyl alcohol
78-78-4	Isopentane
78-59-1	Isophorone
121-91-5	Isophthalic acid
78-79-5	Isoprene
67-63-0	Isopropanol
108-21-4	Isopropyl acetate
75-31-0	Isopropylamine
75-29-6	Isopropyl chloride
25168-06-3	Isopropylphenol
463-51-4	Ketene
++	Linear alkyl sulfonate
123-01-3	Linear alkylbenzene
110-16-7	Maleic acid
108-31-6	Maleic anhydride
6915-15-7	Malic acid
141-79-7	Mesityl oxide
121-47-1	Metanilic acid
79-41-4	Methacrylic acid
563-47-3	Methallyl chloride
67-56-1	Methanol
79-20-9	Methyl acetate
105-45-3	Methyl acetoacetate
74-89-5	Methylamine
100-61-8	n-methylaniline
74-83-9	Methyl bromide
37365-71-2	Methyl butynol
74-87-3	Methyl chloride
108-87-2	Methylcyclohexane
1331-22-2	Methylcyclohexanone
75-09-2	Methylene chloride

101-77-9	Methylene dianiline
101-68-8	Methylene diphenyl diisocyanate
78-93-3	Methyl ethyl ketone
107-31-3	Methyl formate
108-11-2	Methyl isobutyl carbinol
108-10-1	Methyl isobutyl ketone
80-62-6	Methyl methacrylate
77-75-8	Methylpentynol
98-83-9	a-methylstyrene
110-91-8	Morpholine
85-47-2	a-naphthalene sulfonic acid
120-18-3	b-naphthalene sulfonic acid
90-15-3	a-naphthol
135-19-3	b-naphthol
75-98-9	Neopentanoic acid
88-74-4	o-nitroaniline
100-01-6	p-nitroaniline
91-23-6	o-nitroanisole
100-17-4	p-nitroanisole
98-95-3	Nitrobenzene
+	Nitrobenzoic acid (o, m, & p)
79-24-3	Nitroethane
75-52-5	Nitromethane
88-75-5	2-Nitrophenol
25322-01-4	Nitropropane
1321-12-6	Nitrotoluene
27215-95-8	Nonene
25154-52-3	Nonylphenol
27193-28-8	Octylphenol
123-63-7	Paraldehyde
115-77-5	Pentaerythritol
109-66-0	n-pentane
109-67-1	1-pentene
127-18-4	Perchloroethylene
594-42-3	Perchloromethyl mercaptan
94-70-2	o-phenetidine
156-43-4	p-phenetidine
108-95-2	Phenol
+	Phenolsulfonic acids
91-40-7	Phenylanthranilic acid
++	Phenylenediamine
75-44-5	Phosgene
85-44-9	Phthalic anhydride
85-41-6	Phthalimide
108-99-6	b-picoline
110-85-0	Piperazine
+	Polybutenes
25322-68-3	Polyethylene glycol
25322-69-4	Polypropylene glycol
123-38-6	Propionaldehyde
79-09-4	Propionic acid
71-23-8	n-propyl alcohol
107-10-8	Propylamine
540-54-5	Propyl chloride

115-07-1	Propylene
127-00-4	Propylene chlorohydrin
78-87-5	Propylene dichloride
57-55-6	Propylene glycol
75-56-9	Propylene oxide
110-86-1	Pyridine
106-51-4	Quinone
108-46-3	Resorcinol
27138-57-4	Resorcylic acid
69-72-7	Salicylic acid
127-09-3	Sodium acetate
532-32-1	Sodium benzoate
9004-32-4	Sodium carboxymethyl cellulose
3926-62-3	Sodium chloroacetate
141-53-7	Sodium formate
139-02-6	Sodium phenate
110-44-1	Sorbic acid
100-42-5	Styrene
110-15-6	Succinic acid
110-61-2	Succinonitrile
121-57-3	Sulfanilic acid
126-33-0	Sulfolane
1401-55-4	Tannic acid
100-21-0	Terephthalic acid
+	Tetrachloroethanes
117-08-8	Tetrachlorophthalic anhydride
78-00-2	Tetraethyl lead
119-64-2	Tetrahydronaphthalene
85-43-8	Tetrahydrophthalic anhydride
75-74-1	Tetramethyl lead
110-60-1	Tetramethylenediamine
110-18-9	Tetramethylethylenediamine
108-88-3	Toluene
95-80-7	2,4,-diaminotoluene
584-84-9	Toluene-2,4-diisocyanate
26471-62-5	Toluene diisocyanates (mixture)
1333-07-9	Toluenesulfonamide
++	Toluenesulfonic acids
98-59-9	Toluenesulfonyl chloride
26915-12-8, +	Toluidines
+	Trichlorobenzenes
71-55-6	1,1,1-trichloroethane
79-00-5	1,1,2-trichloroethane
79-01-6	Trichloroethylene
75-69-4	Trichlorofluoromethane
96-18-4	1,2,3-trichloropropane
76-13-1	1,1,2-trichlorotrifluoroethane
121-44-8	Triethylamine
112-27-6	Triethylene glycol
112-49-2	Triethylene glycol dimethyl ether
7756-94-7	Triisobutylene
75-50-3	Trimethylamine
57-13-6	Urea
108-05-4	Vinyl acetate

75-01-4	Vinyl chloride
75-35-4	Vinylidene chloride
25013-15-4	Vinyl toluene
1330-20-7	Xylenes (mixed)
95-47-6	o-xylene
106-42-3	p-xylene
1300-71-6	Xylenol
1300-73-8	Xylidine
1634-04-4	Methyl tert-butyl ether
9002-88-4	Polyethylene
9003-07-0	Polypropylene
9003-53-6	Polystyrene



APPENDIX II  
STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
N.J.A.C. 7:27-16.2 VOC STATIONARY STORAGE TANKS

INSPECTIONS

Equipment Needed:

Organic Vapor Analyzer (OVA) calibrated with methane in accordance with EPA Method 21, as supplemented or amended and incorporated herein by reference; explosimeter calibrated with methane (for internal floating roof tanks); liquid resistant measuring tape or device; tank probe (to measure gaps in tank seals - 1/8 inch, 1/2 inch, 1-1/2 inch); explosivity meter; flashlight.

Inspection Procedures (N.J.A.C. 7:27-16.2(r)):

- A. Any inspection shall be performed by an authorized inspector.
- B. The findings of any tank inspection, whether completed or not, shall be recorded on the Inspection Form at N.J.A.C. 7:27-16, Appendix II, prescribed by the Department in accordance with the rule's requirements. If an inspection is stopped before completion, indicate the reason for this action in section J "Comments" of the Inspection Form.
- C. During the inspection, the person(s) conducting the inspection must have a copy of the relevant portions of the Preconstruction Permit or the Operating Permit pertinent to the tank being inspected. Any discrepancies between the permit equipment description and the existing tank or the permit conditions and the actual operating conditions of the tank as verified during an inspection must be recorded in section J "Comments" of the Inspection Form.
- D. Inspect the ground level periphery of each tank for possible leaks in the tank shell. Complete section D "Ground Level Inspection" of the Inspection Form.
- E. For external floating roof tanks:
  - 1. From the platform, visually inspect the roof and check for permit or rule violations. Record the information as shown under section F of the Inspection Form.
  - 2. During visual inspection of the roof, check for unsealed roof legs, open hatches, open emergency roof drains or vacuum breakers and record the findings on the Inspection Form accordingly. Indicate presence of any tears in the fabric of both seals.
  - 3. Inspect the roof fittings using the 1/8 inch probes or conduct a EPA Method 21 inspection, as supplemented or amended and incorporated herein by reference, of the roof fittings for a leak-free condition. Record any leaks above 500 ppm in the Fugitive Emissions Form.
  - 4. Inspect the entire secondary seal using the 1/8 inch and 1/2 inch probes. Record the

gap data in section F(4) of the Inspection Form.

5. When required (which is every five years), inspect the entire primary seal using the 1/8 inch, 1/2 inch, and 1-1/2 inch probes. Inspect the primary seal by holding back the secondary seal. Record the gap data in section F(5) of the Inspection Form.
  6. Record all cumulative gaps between 1/8 inch and 1/2 inch; between 1/2 inch and 1-1/2 inch; and in excess of 1-1/2 inches, for both primary and secondary seals in section G of the Inspection Form. Secondary seal gaps greater than 1/2 inch should be measured for length and width, and recorded in section J "Comments" of the Inspection Form.
- F. For internal floating roof and domed tanks:
1. Using an explosimeter, measure the concentration of the vapor space above the internal floating roof in terms of lower explosive limit (LEL), and record the reading in section E of the Inspection Form.
  2. Visually inspect the deck fittings and the visible seal of the rim seal system, and record findings in section E of the Inspection Form.
  3. Conduct gap measurements of the deck fittings and rim seal system each time the tank is emptied and degassed but no less than once every 10 years.
- G. For fixed roof tanks:
1. Inspect the pressure relief valves, piping, valves and fittings located on the roof for leak-free condition. Record any readings in excess of 500 ppm in the Fugitive Emissions Form.
- H. Complete all necessary calculations and record all required data accordingly in the Inspection Form and Fugitive Emissions Form.

## INSPECTION FORM

**\*\*PLEASE COMPLETE FORM LEGIBLY IN BLACK INK\*\***

Program Interest No. \_\_\_\_\_ Permit Activity No. \_\_\_\_\_ Tank ID No. E \_\_\_\_\_

Inspection Date \_\_\_\_\_ Time \_\_\_\_\_

Is this a Follow-up Inspection? No  Yes  If yes, Date of Previous Inspection \_\_\_\_\_

### A. COMPANY INFORMATION:

Company Name \_\_\_\_\_

Location Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Mailing Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

Contact Person \_\_\_\_\_ Title \_\_\_\_\_

Phone \_\_\_\_\_

### B. INSPECTION CONDUCTED BY:

Name \_\_\_\_\_ Title \_\_\_\_\_

Company Name \_\_\_\_\_ Phone \_\_\_\_\_

Mailing Address \_\_\_\_\_ City \_\_\_\_\_ Zip \_\_\_\_\_

### C. TANK INFORMATION:

Capacity \_\_\_\_\_ (gals) Installation Date \_\_\_\_\_ Tank Diameter \_\_\_\_\_ (ft) Tank Height \_\_\_\_\_ (ft)

Product Type \_\_\_\_\_ Product Vapor Pressure \_\_\_\_\_ (psia)

Type of Tank: Riveted  Welded  Other  (describe) \_\_\_\_\_

Color of Shell \_\_\_\_\_ Color of Roof \_\_\_\_\_

Roof Type: Pontoon  Double Deck  Other  (describe) \_\_\_\_\_

External floating roof  Internal floating roof or domed tank

### D. GROUND LEVEL INSPECTION:

1) Product Temperature \_\_\_\_\_ ° F      2) Product level \_\_\_\_\_ (ft)

3) List type and location of leaks found in tank shell.

\_\_\_\_\_

4) List any discrepancies between the existing equipment and the equipment description on the Permit.

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5) Is tank in compliance with Permit conditions? No  Yes  If no, explain \_\_\_\_\_

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E. INTERNAL FLOATING ROOF OR DOMED TANK:

- 1) Check vapor space between floating roof and fixed roof with explosimeter. \_\_\_\_\_ Percent LEL.
- 2) Conduct visual inspection of roofs and the visible seal of the rim seal system.
- 3) Are all roof openings covered? No  Yes  If no, explain in Comments section (J) and proceed to part (H)(6).

F. EXTERNAL FLOATING ROOF TANK (or DOMED TANK AND INTERNAL FLOATING ROOF TANK when needed)

- 1) On the diagram (below) indicate the location of the ladder, roof drain(s), anti-rotation device(s), platform, gauge well, and vents or other appurtenances. *Note information in relation to North (to the top of the worksheet).*
- 2) Describe any uncovered openings found on the roof in the Comments section (J).
- 3) Identify any tears in the seal fabric. Describe and indicate on diagram (below):

4) Secondary Seal Inspection

- a. Type of Secondary Seal: \_\_\_\_\_
- b. Does 1/2" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.
- c. Does 1/8" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.
- d. Record dimensions of gap for gaps  
> 1/8" \_\_\_\_\_  
> 1/2" \_\_\_\_\_

*NOTE: Record the actual width and cumulative length of gaps in feet and inches.  
(Do not include gaps > 1/2" in 1/8" measurements)*

5) Primary Seal Inspection

- a) Type of Primary Seal:  Shoe;  Tube;  Other \_\_\_\_\_
- b) Shoe seal: Does 1-1/2" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.
- c) Shoe seal: Does 1/2" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.
- d) Tube seal: Does 1/2" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.

e) All seal types: Does 1/8" probe drop past seal? No  Yes  If yes, measure length(s) and show on diagram.

f) Record dimensions of gaps for gaps

> 1/8" \_\_\_\_\_

> 1/2" \_\_\_\_\_

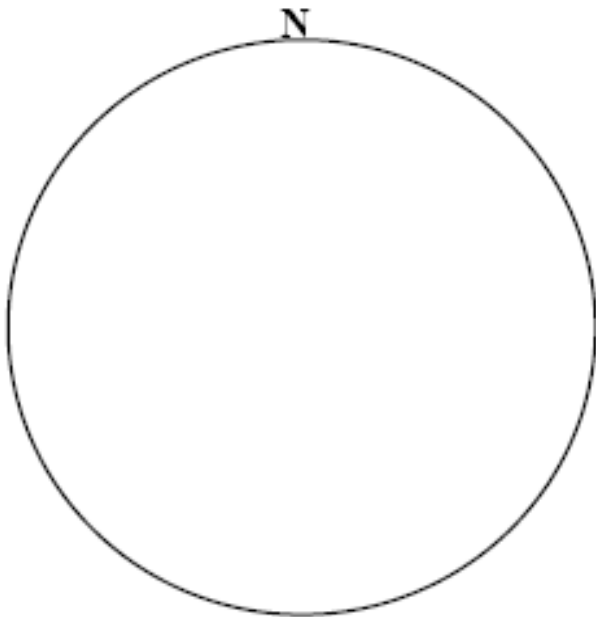
>1-1/2" \_\_\_\_\_

*NOTE: Record the actual width and cumulative length of gaps in feet and inches. (Do not include gaps > 1/2" in 1/8" measurements, or gaps > 1-1/2" in 1/2" measurements)*

6) Deck Fitting Inspection

(Circle one) Does 1/8" probe drop past gasket seal or does seal fail EPA Method 21? No  Yes  If yes, identify fitting.

NOTE: Show defects using symbols. Show seal gaps and lengths.



Legend	
<b>Equipment</b>	
AD	Antirotational device
GW	Gauge well
T	Leg stand
RD	Roof drain
*	Emergency roof drain
∞	Vacuum breaker
▲	Vent
PL	Platform & ladder
<b>Defects</b>	
LT	Leg top
⋈	Leg pin
OH	Open hatch
V\	Torn seal
-P-	Primary seal gap
-S-	Secondary seal gap

IF INTERNAL FLOATING ROOF OR DOMED TANK, PROCEED TO PART H(6) WHEN APPROPRIATE:

G. CALCULATIONS - complete all applicable portions of the following:

Record dimensions of indicated gaps (from F(4)(d), F(5)(b), and F(5)(f)). Record in feet and inches.

Gaps in primary seal between 1/8 and 1/2 inch: \_\_\_\_\_

Gaps in primary seal between 1/2 and 1-1/2 inch: \_\_\_\_\_

Gaps in primary seal greater than 1-1/2 inches: \_\_\_\_\_

Gaps in secondary seal between 1/8 and 1/2 inch: \_\_\_\_\_

Gaps in secondary seal greater than 1/2 inch: \_\_\_\_\_

Multiply diameter (ft) of tank to determine appropriate gap limits:

5 percent circumference = diameter X 0.157 = \_\_\_\_\_ 60 percent circ. = diam. X 1.88 = \_\_\_\_\_

10 percent circumference = diameter X 0.314 = \_\_\_\_\_ 90 percent circ. = diam. X 2.83 = \_\_\_\_\_

30 percent circumference = diameter X 0.942 = \_\_\_\_\_ 95 percent circ. = diam. X 2.98 = \_\_\_\_\_

H. DETERMINE COMPLIANCE STATUS OF TANK:

- 1) Were any openings found on the roof? No  Yes
- 2) Were any tears in the seals found? No  Yes
- 3) Is the product level lower than the level at which the roof would be floating? No  Yes
- 4) Secondary Seal:
  - Did 1/2" probe drop between shell and seal? No  Yes
  - Did cumulative 1/8" - 1/2" gap exceed 95 percent circumference length? No  Yes
- 5) Primary Seal:
  - Shoe: Did 1-1/2" probe drop between shell and seal? No  Yes
  - Did cumulative 1/2" - 1-1/2" gap exceed 30 percent circumference length, and did cumulative 1/8 - 1/2" gap exceed 60 percent circumference length? No  Yes
  - Did any single continuous 1/8" - 1-1/2" gap exceed 10 percent circumference length? No  Yes
  - Tube: Did 1/2" probe drop between shell and seal? No  Yes
  - Did cumulative 1/8" - 1/2" gap exceed 95 percent circumference length? No  Yes
- 6) Internal floating roof (installed before 6/1/84):
  - Did percent LEL exceed 50 percent? No  Yes
  - (installed after 6/1/84) or domed tank: Did percent LEL exceed 30 percent? No  Yes
- 7) Does tank have permit conditions? No  Yes
- Does tank comply with these conditions? No  Yes

I. IF THE INSPECTION WAS TERMINATED PRIOR TO COMPLETION FOR ANY REASON, PLEASE



