

Rule 25. General Provisions and Applicability for Volatile Organic Compounds.

Rule 25.1 Purpose. It is the purpose of this Rule 25 to establish emission standards for new and existing sources of volatile organic compounds located within the city. The emission standards established in this rule will apply to different sources depending upon the potential emissions and the location of the source in an urban or rural county.

Rule 25.2 Definitions. Words or terms defined in Rule 25 are for the purpose of this rule only and will not effect the definitions of section 4-2. Unless specifically defined in this Rule 25, the definitions from section 4-2 will apply.

- (1)*Approved* means approved by the director, Chattanooga-Hamilton County Air Pollution Control Bureau.
- (2)*Capture system* means the equipment (including hoods, ducts, fans, etc.) used to contain, capture, or transport a pollutant to a control device.
- (3)*Coating applicator* means an apparatus used to apply a surface coating.
- (4)*Coating line* means one or more apparatus or operations which include a coating applicator, flash-off area, and oven wherein a surface coating is applied, dried, and/or cured.
- (5)*Commenced* means that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time a continuous program of construction or modification.
- (6)*Construction* means commencement of on site fabrication, erection, or installation of a new or modified source or facility.
- (7)*Control device* means any method, process, or equipment which removes or reduces VOC emissions to the ambient air.
- (8) *Continuous vapor control system* means a vapor control system that treats vapors displaced from tanks during filling on a demand basis without intermediate accumulation.
- (9)*Day* means a 24-hour period beginning at midnight.
- (10)*Emission* means the release or discharge, whether directly or indirectly, of VOC's into the ambient air from any source.
- (11)*Existing source* is any process in existence or having a state or local agency's construction permit prior to the effective date of each rule 25 category.

- (12)*Facility* means any building, structure, installation, activity, or combination thereof which contains one or more stationary source of air contaminants.
- (13)*Flashoff area* means the space between the application area and the oven.
- (14)*Incinerator* means a combustion apparatus designed for high temperature operation in which solid, semisolid, liquid, or gaseous combustible wastes are ignited and burned efficiently and from which the solid and gaseous residues contain little or no combustible material.
- (15)*Intermittent vapor control system* means a vapor control system that employs an intermediate vapor holder to accumulate vapors displaced from tanks during filling. The control device treats the accumulated vapors only during automatically controlled cycles.
- (16)*Knife coating* means the application of a coating material to a substrate by means of drawing the substrate beneath a knife that spreads the coating evenly over the full width of the substrate.
- (17)*Loading rack* means an aggregation or combination of gasoline loading equipment arranged so that all loading outlets in the combination can be connected to a tank truck or trailer parked in a specified loading space.
- (18)*New source* is all other process(es) not defined in definition (m) as an existing source.
- (19)*Organic material* means a chemical compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.
- (20)*Oven* means a chamber within which heat is used to bake, cure, polymerize, and/or dry a surface coating.
- (21)*Owner or operator* means any person who owns, leases, controls, operates or supervises a facility, existing source, new source, or control device.
- (22)*Petroleum liquid* means crude oil, condensate, and any finished or intermediate products manufactured or extracted in a petroleum refinery.
- (23)*Prime coat* means the first film of coating applied in a multi-coat operation.
- (24)*Reid vapor pressure* means the absolute vapor pressure of volatile crude oil and volatile petroleum liquids except liquefied petroleum gases as determined by American

Society for Testing and Materials, Part 17, 1973, D-323-72(Reapproved 1977).

- (25)*Roll coating* means the application of a coating material to a substrate by means of hard rubber or steel rolls.
- (26)*Rotogravure coating* means the application of a coating material to a substrate by means of a roll coating technique in which the pattern to be applied is etched on the coating roll. The coating material is picked up in these recessed areas and is transferred to the substrate.
- (27)*Solvent* means organic materials which are liquid at standard conditions and which are used as dissolvers, viscosity reducers, or cleaning agents.
- (28)*Standard conditions* means a temperature of 20° C (68° F) and pressure of 760 millimeters of mercury (29.92 inches of mercury).
- (29)*Topcoat* means the final film of coating applied in a multiple coat operation.
- (30)*True vapor pressure* means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute Bulletin 2517, Evaporation Loss from Floating Roof Tanks, 1962.
- (31)*Vapor collection system* means a vapor transport system which uses direct displacement by the liquid loaded to force vapors from the tank into a vapor control system.
- (32)*Vapor control system* means a system approved by the director that prevents release to the atmosphere of organic compounds in the vapors displaced from a tank during the transfer of gasoline. Approval by the director is based on the system's ability to reduce VOC vapors by at least 90% by weight.
- (33)*Volatile organic compound (VOC)*: Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions.
- (1) This includes any such organic compound other than the following, which have been determined to have negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane (methyl chloroform); 1,1,1-trichloro-2,2,2-trifluoroethane (CFC-113); trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (CFC-22); trifluoromethane (FC-23); 1,2-dichloro 1,1,2,2-tetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); 1,1,1-trifluoro 2,2-dichloroethane (HCFC-123); 1,1,1,2-tetrafluoroethane (HCFC-134a); 1,1-dichloro 1,1-fluoroethane (HCFC-141b); 1-chloro 1,1-difluoroethane (HCFC-142b);

2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HCFC-134); 1,1,1-trifluoroethane (HCFC-143a); 1,1-difluoroethane (HCFC-152a); parachlorobenzotrifluoride (PCBTF); cyclic, branched, or linear completely methylated siloxanes; and perfluorocarbon compounds which fall into these classes:

- (a) Cyclic, branched, or linear, completely fluorinated alkanes;
 - (b) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
 - (c) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
 - (d) Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.
- (2) For purposes of determining compliance with emissions limits, VOC will be measured by the test methods in this chapter or Title 40 Code of Federal Regulations Part 60, Appendix A, which as been incorporated by reference in Chapter 4, as applicable. Where such a method also measures compounds with negligible photochemical reactivity, these negligibly-reactive compounds may be excluded as VOC if the amount of such compounds is accurately quantified, and such exclusion is approved by the director.
- (3) As a precondition to excluding these compounds as VOC or at any time thereafter, the director shall require an owner or operator to provide monitoring or testing methods and results demonstrating the amount of negligibly-reactive compounds in the source's emissions.

Rule 25.3 Standards for new sources.

(1) For the purpose of this Rule 25.3, the following definitions apply:

a. *Lowest achievable emission rate (also denoted LAER)* means for any source, that rate of emissions which reflects:

- 1. the most stringent emission limitation which is achieved in practice by such class or category of source.
- 2. In no event shall a new or modified source emit any pollutant in excess of the amount allowable under the applicable rules of New Source Performance

Standards (NSPS).

b.*Potential emissions* means the maximum capacity of a stationary source to emit under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit, including air pollution control equipment 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 or the effect it would have on emissions is legally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

(2) New or modified sources identified as having potential emissions of 100 tons per year or greater shall utilize LAER. All other new or modified sources locating in Hamilton County shall utilize BACT. Regardless of the specific emission standards derived from these determinations, a new and/or modified source in an urban nonattainment county must comply with the provisions of this rule.

a. Attainment and Unclassified Areas. The director shall not grant a permit or waiver for the construction or modification of any air contaminant source in an attainment or unclassified area if such construction or modification will interfere with the maintenance of an air quality standard or will violate any provisions of the Tennessee Air Quality Act.

b. Non-Attainment Areas. The director shall not grant a permit for construction or modification of any air contaminant source in a non-attainment area nor to any source that significantly impacts on a nonattainment area if such construction or modification will interfere with reasonable further progress in attainment of the specific air quality standard(s) or will violate any provisions of these regulations except in accordance with the following:

1. All new or modified sources shall utilize good engineering practice as determined by the director in designing stacks.

2. New or modified sources with potential emissions of one hundred (100) tons per year or greater shall utilize best available technology specified by the director.

3. New or modified sources identified as having potential emissions of one hundred tons or greater shall meet the lowest achievable emission rate (LAER) for that type of source as determined by the director at the time of the permit application. his limit will be determined by the director at the time of the permit application. The term lowest achievable emission rate means, for any source, that rate of emissions which

reflects:

- (i) The most stringent emission limitation which is achieved in practice by such class or category of source.
- (ii) In no event shall a new or modified source emit any pollutant in excess of the amount allowable under the applicable rules of New Source Performance Standards (NSPS).

4.A major source shall also show that it will not interfere with reasonable further progress in attaining the ambient air quality standards by one of the following methods:

(i) Banked Credits

- (A) By agreeing to control the nonattainment emissions to a rate lower than the nonattainment emissions specified as Reasonable Available Control Technology (RACT) by the Director, the owner or operator of an air contaminant source has reserved the right to utilize the incremental reduction between RACT and the Banked Credit Agreed Rate (BCAR) to provide for future growth in the nonattainment area.
- (B) The Banked Credit Agreed Rate is an emission rate more restrictive than RACT which is mutually agreed to by the director and an air contaminant source for the purpose of establishing a Banked Credit. This emission level is in no way related to BACT or LAER. Only sources in operation in existence at the time of a nonattainment state implementation plan (SIP) revision for an area are eligible to establish a bank credit agreed rate.
- (C) The following limitations shall apply to the issuance of a permit for construction or modification for sources using banked credit agreed rate.

All Banked Credits in a given nonattainment area shall become void upon official reclassification of that area as an attainment area.

An increase in pounds per hour shall be offset by a Banked Credit of that amount. The Banked Credit Account will be reduced by that amount.

An air quality modeling review shall show that the Banked Credit used and the new and/or modified source result in predicted cleaner air for the nonattainment area than air quality at the RACT emission level. No predicted new violations of the ambient

air quality standards will be permitted.

The Banked Credit shall not be used until the Banked Credit Agreed Rate level of control is attained by the source involved and demonstrated through a source test or through another method acceptable to the director.

The Banked Credit Agreed Rate shall be contained in the State Implementation Plan as the legally enforceable standard for the air contaminant source. If the source electing to use Banked Credits must reduce emissions to achieve the Banked Credit Agreed Rate level approved by the board, a compliance schedule shall be included in the State Implementation Plan revision.

(ii) Emission Offsets

(A) For major sources, a larger than one-to-one offset of emissions of the nonattainment pollutant, based on both allowable and actual emissions shall be employed. This offset must result in a net improvement in predicted air quality for the pollutant in the area under the influence of emissions from the new or modified major sources and that reasonable further progress shall not be hindered.

(B) All or any portions of the offsets shall be accomplished on or before the time of new source operation and demonstrated through a source test or through another method acceptable to the director.

(C) The reductions shall come from sources in the emission inventory used in the approved control strategy for the nonattainment area state implementation plan revision.

(D) The amount of the proposed reduction shall be sufficient to offset both the emission increases directly associated with the proposed source construction and/or modification and those emissions attributed to permitted minor sources that have come into the area since the last reasonable further progress milestone was met.

(iii) Construction or modification of major sources that have no emission offsets or banked credits. The director shall issue a construction permit to proposed new or modified sources provided the sources' emissions will not prevent reasonable further

progress in the nonattainment area or will not prevent the ambient air quality standards from being met. Completed applications from sources qualifying for this provision will be processed based on the date of receipt of the application by the director.

(iv)Combination of the provisions of subparts (a), (b) and (c) of this part.

5.Prior to the issuance of a permit to a major volatile organic compound (VOC) source in Hamilton County, an analysis of alternate sites, sizes, production process, and environmental control techniques for the proposed source shall be made. A permit shall only be issued if the benefits of the proposed source significantly outweigh the environmental and social costs imposed on the public as a result of the source's location, construction, or modification in this county. The director shall require the submittal of such information as he deems necessary for this analysis.

6.A source is identified as a major source for each pollutant as indicated below:

A major source for SO₂ and Volatile Organic Compounds is a source with potential emissions of more than one hundred (100) tons per year and allowable emissions (based on BACT) greater than any of the following: Fifty (50) tons per year; one thousand (1,000) lbs. per year; one thousand (1,000) lbs. per day; or one hundred (100) lbs. per hour.

Piecemeal construction is cumulative.

When an air contaminant source's new and/or modified allowable emissions equals or exceeds it becomes a major source.

"Potential emissions" as used above means the capability at maximum capacity to emit a pollutant in the absence of air pollution control equipment. Air pollution control equipment includes control equipment which is not, aside from air pollution control laws and regulations, vital to production of the normal product of the source or to its normal operation. Annual potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the potential emission rate of a source. Enforceable permit conditions on the type or amount of materials combusted or processed may be used

in determining the potential emission rate of a source.

7. The director shall not issue a permit to any major source in or significantly impacting a nonattainment area unless all other sources owned or operated by the applicant anywhere in the state are in compliance or on an approved compliance schedule.
- (3) If new or modified sources at a facility occurring since February 16, 1979 or since the time of the last construction approval issued requiring LAER under this rule total to more than 100 tons per year potential emissions, all the new and modified sources during the period shall utilize LAER. The stage of construction and the ability of the source to install additional control equipment shall be considered in determining LAER.
- (4) No emissions credit may be allowed for replacing one volatile organic compound (VOC) with another of lesser reactivity.

Rule 25.4. Alternate Emission Limitation.

- (1) Plants with process emission source(s) regulated by this rule 25 with a Certificate of Alternate Control shall not emit volatile organic compounds in excess of the limits on said Certificate. This limitation is in lieu of the emission limitation contained in other rules of this regulation, Only sources with an emission limitation in Rule 25 are eligible for inclusion in the Certificate.
- (2) The owner or operator of any plant having process emission sources regulated by Rule 25 can apply to the director for a Certificate of Alternate Control for a plant and the director may grant the request if the following conditions are met:
- a. The plant is reducing, or will be after a specified date taking actions to reduce, emissions at least as much as is required under the other rules in Section 9, Rule 25, even though specific process emission source(s) in the plant may not be meeting the limitations specified in the other rules of this Rule 25.
- b. If a specified future date for compliance is involved, this date must be as is practicable and be specified in a schedule of compliance as a condition on the certificate. This schedule must conform with the requirements of paragraphs (3) and (4) of Rule 25.42 for individual compliance schedules.
- c. There must be reasonable means for the director or his representatives to determine that this alternative emission control method is being implemented and complied with.

d. A fee of \$250.00 has been paid to the bureau at the time application is made to cover the cost of review of the request for the Certificate of Alternate Control.

e. All process emission sources commenced on or after the effective date of the rule or rules adopted by the passage of Resolution No. 877-4, August 3, 1977, by the County Council of Hamilton County, Tennessee, and the requirements of Section 10-F and Section 9, Rule 18.2 limiting emissions of volatile organic compounds are meeting the limits specified in those rules.

f. No credit can be given for a reduction of emissions in determining if the requirements of subparagraph (a) of this paragraph are met if another rule would require that reduction anyway.

(3) Alternate emission control limitations approved under this section must be subjected to a public hearing and incorporated as a revision to the State Implementation Plan. The owner or operator requesting this alternate emission control limitation shall be responsible for all costs associated with publishing the required legal notices.

(4) The owner or operator of the plant must:

a. file or post on the operating premises the Certificate of Alternate Control.

b. keep all pollution control equipment in good operating condition and utilize said equipment at all times.

c. meet other conditions specified in accordance with Rule 25.4(8).

(5) The Certificate of Alternate Control may be revoked by the board if it is found that any of the requirements of this section have been violated or the board may enforce this section by seeking any other remedy available under this regulation or at law.

(6) The Certificate of Alternate Control does not relieve the owner or operator of the duty to meet all emission requirements in other rules for sources commenced after the effective date of the rule.

(7) Upon revocation of the Certificate of Alternate Control, the sources at the plant must comply with other provisions in this chapter that would have been applicable had the Certificate not been issued. The board may specify a time period for the source to come into compliance with the more restrictive emission limitations.

(8) The Certificate of Alternate Control may specify alternate test methods to determine compliance or different averaging times (so long as the time does not exceed eight hours) or may contain other conditions appropriate to insure compliance with the

Alternate Control Method and the meeting of compliance on the date specified in accordance with subparagraph (2)(b) of this rule. The certificate must contain, as conditions, specific standards for each emission source involved.

Rule 25.5. Automobile and light-duty truck manufacturing.

(1) For the purpose of this rule 25.5, the following definitions apply:

- a. *Application area* means the area where the coating is applied by dipping or spraying.
- b. *Manufacturing plant* is an assembly plant which coats and assembles parts supplied by a variety of sources producing a finished vehicle ready for sale to vehicle dealers. Customizers, body shops and other repainters are not part of this definition.
- c. *Automobile* means all passenger cars or passenger car derivatives capable of seating 12 or fewer passengers.
- d. *Light-duty trucks* means any motor vehicle rated at three thousand eight hundred sixty four (3864) kilograms (eight thousand five hundred (8500) pounds) gross weight or less which are designed primarily for purpose of transportation or are derivatives of such vehicles.

(2) No owner or operator of an automotive or light-duty truck manufacturing plant subject to this rule 25.5 may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds except as provided in 25.40, 25.41 or 25.42.

- a. 0.145 kilograms per liter of coating (1.2 pounds per gallon), excluding water, delivered to the applicator from prime coat application, flashoff area and oven operations.
- b. 0.34 kilograms per liter of coating (2.8 pounds per gallon) excluding water, delivered to the applicator from surfacer application, flashoff area and oven operations.
- c. 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicator from topcoat application, flashoff area and oven operations.
- d. 0.58 kilograms per liter of coating (4.8 pounds per gallon), excluding water, delivered to the applicator from final repair application, flashoff area and oven operations.

(3) This rule 25.5 will apply to facilities having potential VOC emissions from Automobile and Light Duty Truck Manufacturing of 100 tons per year or greater in rural counties or 25 tons per year or greater.

Rule 25.6. Paper coating.

(1) For the purpose of this rule 25.6, the following definitions apply:

a. *Coating* means the operation where the coating formulation is distributed uniformly across the substrate.

b. *Paper coating* means coatings put on paper and pressure sensitive tapes regardless of substrate. The main coating application devices are knives, rollers or rotogravure devices. Related web coating processes on plastic film and decorative coatings on metal foil are included in this definition. Combined operations where a single machine prints and coats or prints and laminates in line are not part of this definition.

(2) This rule 25.6 will apply, in accordance with rule 25.6(3), to roll, knife, or rotogravure coater(s) and drying oven(s) of paper coating lines.

(3) No owner or operator of a paper coating line subject to this rule may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 0.35 kilograms per liter of coating (2.9 pounds per gallon), excluding water, delivered to the coating applicator from a paper coating line except as provided in rules 25.40, 25.41 or 25.42.

Rule 25.7. Petroleum liquid storage.

(1) For the purpose of this rule 25.7, the following definitions apply:

a. *Condensate* means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature and/or pressure and remains liquid at standard conditions.

b. *Crude oil* means a naturally occurring mixture which consists of hydrocarbons and/or sulfur, nitrogen and/or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.

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

d. *External floating roof* means a storage vessel cover in an open top tank consisting of a double deck or pontoon single deck which rests upon and is supported by the petroleum liquid being contained and is equipped with a closure seal or

seals to close the space between the roof edge and tank shell.

e. *Internal floating roof* means a cover or roof in a fixed roof tank which rests upon the petroleum liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

f. *Petroleum refinery* means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of crude oils, or through redistillation, cracking, extraction, or reforming of unfinished petroleum derivatives.

(2) This rule will apply to all fixed roof storage vessels with capacities greater than 42,000 gallons containing volatile petroleum liquids whose true vapor pressure is greater than 10.5 kPa (1.52 psia).

(3) This rule 25.7 will not apply to volatile petroleum liquid storage vessels:

a. equipped with floating roofs before January 1, 1979; or,

b. having capacities less than 420,000 gallons used to store produced crude oil and condensate prior to lease custody transfer.

(4) Except as provided under paragraph (3) of this rule, no owner or operator of an effected source under paragraph (2) of this rule 25.7 shall permit the use of such source except as provided in 25.41 unless:

a. the source has been retrofitted with an internal floating roof equipped with a closure seal, or seals, to close the space between the roof edge and tank wall; or,

b. the source has been retrofitted with equally effective alternative control, approved by the director; and,

c. the source is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials; and,

d. all openings, except stub drains are equipped with covers, lids, or seals such that;

1. the cover, lid, or seal is in the closed position at all times except when in actual use; and,

2. automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and,

3. rim vents, if provided, are set up to open when the roof is being floated off the roof leg

- supports or at the manufacturer's recommended setting; and,
- e. routine inspections are conducted through roof hatches once per month; and,
- f. a complete inspection of cover and seal is conducted as specified by the director; and,
- g. records are maintained as specified by the director.

Rule 25.8. Bulk gasoline plants.

(1) For the purpose of this rule 25.8, the following definitions apply:

- a. *Bottom filling* means the filling of a tank truck through an opening or nozzle located either flush with or near the bottom of the tank compartment or the filling of a stationary storage tank through a shell nozzle located in conformance with API Standard 650 Welded Steel Tanks for Oil Storage; Section 3.6.3., Shell Nozzles or the equivalent as approved by the director.
- b. *Bulk gasoline plant* means a gasoline storage and distribution facility with an annual average daily throughput of less than 76,000 liters (20,000 gallons) which receives gasoline from bulk terminals by trailer transport, stores it in tanks, and subsequently dispenses it via account trucks to local farms, businesses, and service stations.
- c. *Gasoline* means any petroleum distillate having a Reid vapor pressure of 27.6 kPa (4 psia) or greater.
- d. *Splash filling* means the filling of a tank truck or stationary storage tank through a pipe or hose whose discharge opening is above the surface level at the liquid in the tank being filled.
- e. *Submerged filling* means the following for the specified sources:
 - 1. Tank trucks. Filling with a drop tube which extends within six (6) inches of the bottom compartment.
 - 2. Terminal or bulk plant storage tanks. Filling through an outlet located in accordance with API Standard 650 Welded Steel Tanks for Oil Storage; Section 3.6.3., Shell Nozzles or the equivalent as approved by the director.
- f. *Vapor balance system* means a combination of pipes or hoses which create a closed system between the vapor spaces of an unloading tank and receiving tank such that vapors displaced from the receiving tank are transferred to the tank

being unloaded.

(2) This rule 25.8 will apply, in accordance with Rule 25.41, to the unloading, loading, and storage facilities of all bulk gasoline plants and all tank trucks or trailers delivering or receiving gasoline at bulk gasoline plants.

(3) This rule will not apply to:

a. stationary storage tanks of less than 2,000 gallon capacity; or,

b. bulk plants in Hamilton County with less than 4,000 gallons per day annual average throughout, provided records of throughput are maintained and reported to the director as specified by the director.

(4) Except as provided under paragraph (3) of this rule 25.8, no owner or operator of a bulk gasoline plant (tank truck or trailer) shall load or unload gasoline unless each tank is equipped with a vapor balance system as described under paragraph (7) of this rule.

(5) Except as provided under paragraph (3) of this rule 25.8, no owner or operator of a bulk gasoline plant, tank truck or trailer shall load or unload a tank truck or trailer at a bulk gasoline plant unless a bottom filling or submerged filling system or its equivalent is installed at the bulk plant.

(6) No owner or operator of a bulk gasoline plant, tank truck, or trailer shall permit the transfer of gasoline between tank truck or trailer and stationary storage tank unless the equipment required in paragraph (4) and (5) is installed and properly operated to minimize the cost of VOC emissions.

(7) Vapor balance systems required under paragraph (4) of this rule 25.8 shall consist of the following major components:

a. a vapor space connection on the stationary storage tank equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of organic material; and,

b. a connecting pipe or hose equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of organic material; and,

c. a vapor space connection on the tank truck or trailer equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of organic material.

(8) No owner or operator of a bulk gasoline plant may permit gasoline to be spilled, discharged into sewers, stored in open containers or handled in any other manner that would result in evaporation.

Rule 25.9. Bulk gasoline terminals.

(1) For the purpose of this rule 25.9, the following definitions apply:

a. *Bulk gasoline terminal* means a gasoline storage facility which receives gasoline from refineries primarily by pipeline, ship, or barge, and delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by tank truck; and has an annual average daily throughput of more than 76,000 liters (20,000 gallons) of gasoline.

b. *Gasoline* means a petroleum distillate having a Reid vapor pressure of 27.6 kPa (4 psia) or greater.

(2) This rule 25.9 will apply, in accordance with Rule 25.41 to bulk gasoline terminals and the appurtenant equipment necessary to load the tank truck or trailer compartments.

(3) No person may load gasoline into any tank trucks or trailers from any bulk gasoline terminal unless:

a. the bulk gasoline terminal is equipped with a vapor control system, capable of complying with paragraph (4) of this rule, properly installed, in good working order, in operation and consisting of one of the following:

1. an absorber or condensation system which processes and recovers vapors and gases from the equipment being controlled; or,

2. a vapor collection system which directs all vapors to a fuel gas system; or,

3. a control system, demonstrated to have control efficiency equivalent to or greater than parts (3)(a)1. or (3)(a)2. of this section and approved by the director; and,

b. all displaced vapors and gases are vented only to the vapor control system; and,

c. loading devices must not leak when in use and should be designed and operated to allow no more than 10 cc's drainage per disconnect on the basis of 5 consecutive disconnects.

(4) Sources effected under subparagraph (3)(a) may not allow mass emissions of volatile organic compounds from control equipment to exceed 80 milligrams per liter (4.7 grains per gallon) of gasoline loaded.

(5) Sources effected under rule (2) may not:

a. allow gasoline to be discarded in sewers or stored in open containers or handled in any manner that would result in evaporation; nor,

b. allow the pressure in the vapor collection system to exceed the tank truck or trailer pressure relief settings.

Rule 25.10. Gasoline dispensing facilities – stages I vapor recovery.

(1) For the purpose of this rule, the following definitions will apply:

- a. *Coaxial system* means the delivery of the product to the stationary storage tank and the recovery of vapors from the stationary storage tanks occurs through a single coaxial fill tube within a tube. Produce is delivered through the inner tube and vapor is recovered through the annular space between the walls of the inner tube and outer tube.
- b. *Delivery vessel* means tank trucks or trailers equipped with a storage tank and used for the transport of gasoline from sources of supply to stationary storage tanks of gasoline dispensing facilities.
- c. *Dual point system* means the delivery of the product to the stationary storage tank and the recovery of vapors from the stationary storage tank occurs through two separate openings in the storage tank and two separate hoses between the tank truck and the stationary storage tank.
- d. *Gasoline* means and petroleum distillate having a Reid vapor pressure of 4.0 psia or greater.
- e. *Gasoline dispensing facility* means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks.
- f. *Gasoline service station* means any gasoline dispensing facility where gasoline is sold to the motoring public from stationary storage tanks.
- g. *Line* means any pipe suitable for transferring gasoline.
- h. *Operator* means any person who leases, operates, controls or supervises a facility at which gasoline is dispensed.

- i. *Owner* means any person who has legal or equitable title to the gasoline storage tank at a facility.
- j. *Poppeted vapor recovery adaptor* means a vapor recovery adaptor that automatically and immediately closes itself when the vapor return line is disconnected and maintains a tight seal when the vapor return line is not connected.
- k. *Stationary storage tank* means a gasoline storage container that is a permanent fixture.
- l. *Submerged fill pipe* means any fill pipe with a discharge opening which is entirely submerged when the pipe normally used to withdraw liquid from the tank can no longer withdraw any liquid, or which is entirely submerged when the level or liquid is:
 - 1. Six inches above the bottom of the tank if the tank does not have a vapor recovery adaptor; or
 - 2. Twelve inches above the bottom of the tank if the tank has vapor recovery adaptor.

If the opening of the submerged fill pipe is cut at a slant, the distance is measured from the top of the slanted cut to the bottom of the tank.

- m. *Throughput* means the amount of gasoline dispenses at a facility.
- (2) **Applicability.** This rule applies to all gasoline dispensing facilities and gasoline service stations and to delivery vessels delivering gasoline to a gasoline dispensing facility or gasoline service station; and this rule applies to all persons owning, occupying, operating or using a gasoline distribution facility or gasoline service station.
- (3) **Exemptions.** This rule does not apply to:
 - a. Transfers made to storage tanks at gasoline dispensing facilities or gasoline service stations equipped with floating roofs or their equivalent;
 - b. Stationary tanks with a capacity of not more than 2,000 gallons which were in place before July 1, 1979, if the tanks are equipped with a permanent or portable submerged fill pipe;
 - c. Stationary storage tanks with a capacity of not more than 550 gallons which were installed after June 30, 1979, if the tanks are equipped with a permanent or portable submerged fill pipe;

- d. Stationary storage tanks at a gasoline dispensing facility or gasoline service station where the combined annual throughput of gasoline at the facility or gasoline service station where the combined annual throughput of gasoline at the facility or station does not exceed 50,000 gallons, if the tanks are equipped with a permanent submerged fill pipe; and
 - e. Any tanks used exclusively to test fuel dispensing meters.
- (4) No person may cause, suffer, allow or permit the transfer of gasoline from any delivery vessel into any stationary storage tank unless they comply with the following:
- a. The stationary storage tank is equipped with a submerged fill pipe and the vapors displaced from the tank during filling are controlled by a vapor control system as described in Paragraph (8) of this rule;
 - b. The vapor control system is in good working order and is connected and operating with a vapor tight connection;
 - c. The vapor control system is properly maintained and any damaged or malfunctioning components or elements of design have been repaired, replaced or modified;
 - d. Gauges, meters or other specified testing devices are maintained in proper working order;
 - e. All loading lines and vapor lines of delivery vessels and vapor collection systems are equipped with fittings which are leak tight and vapor tight; and
 - f. All hatches on the delivery vessel are kept closed and securely fastened.
- (5) The following records shall be maintained for not less than two years and the same shall be made available for inspection and copy by representative or designees of the Bureau:
- a. The scheduled date for maintenance or the date that a malfunction was detected;
 - b. the date the maintenance was performed or the malfunction corrected; and
 - c. The date the component or element of design of the control system was repaired, replaced or modified.
- (6) The premises of any gasoline dispensing facility or gasoline service station shall be available for inspection by representatives or designees of the Bureau at any time the facility or station is in operation.
- (7) The process of transfer of gasoline from any delivery vessel into any stationary storage

tank shall be subject to observation and inspection or investigation by representatives or designees of the Bureau.

(8) The vapor control system required by Paragraph (4) of this rule shall include one or more of the following:

- a. A vapor-tight line from the stationary storage tank to the delivery vessel and;
 - 1. For a coaxial vapor recovery system, either a poppeted or unpoppeted vapor recovery adaptor; or
 - 2. For a dual point vapor recovery system, a poppeted vapor recovery adaptor; or
- b. A refrigeration-condensation system or equivalent designed to recover at least 9 percent by weight of the organic compounds in the displaced vapor.

(9) If an unpoppeted vapor recovery adaptor is used pursuant to Part (8)a.1 of this rule, the tank liquid fill connection shall remain covered either with a vapor-tight cap or a vapor return line except when the vapor return line is being connected or disconnected.

(10) If an unpoppeted vapor recovery adaptor is used pursuant to Part (8)a.1 of this rule, the unpoppeted vapor recovery adaptor shall be replaced or upgraded.

(11) Where vapor lines from the storage tanks are manifolded, poppeted vapor recovery adaptors shall be used. No more than one tank is to be loaded at a time if the manifold vapor lines have a nominal pipe size of less than 3 inches. If the manifold vapor lines have a nominal pipe size of 3 inches or larger, then two tanks at a time may be loaded.

(12) Vent lines on stationary storage tanks shall have pressure release valves or restrictors.

(13) Vapor-laden delivery vessel:

- a. Shall be designed and maintained to be vapor-tight during loading and unloading operations and during transport with the exception of normal pressure/vacuum venting as required by regulations of the Department of Transportation; and
- b. If it is refilled in Hamilton County, Tennessee, shall be refilled only at:
 - 1. Bulk gasoline plants complying with rule 25.8 of this section; and
 - 2. Bulk gasoline terminals complying with Rule 25.9 of this section.

(14) It shall be the responsibility of owners, occupiers and operators of gasoline dispensing facilities and gasoline service stations to assure compliance with this rule and to disallow the transfer from any delivery vessel that does not comply with those requirements of this rule applicable to delivery vessels. It shall be the responsibility of owners, operators and drivers of delivery vessels to assure compliance with this rule and to refuse to transfer from any delivery vessel that does not comply with those requirements of this rule applicable to delivery vessels.

Rule 25.11. Petroleum refinery sources.

(1) For the purpose of this rule, the following definitions apply:

- a. *Accumulator* means the reservoir of a condensing unit receiving the condensate from the condenser.
- b. *Condenser* means any heat transfer device used to liquefy vapors by removing their latent heats of vaporization. Such devices include, but are not limited to, shell and tube, coil, surface, or contact condensers.
- c. *Firebox* means the chamber or compartment of a boiler or furnace in which materials are burned but does not mean the combustion chamber of an incinerator.
- d. *Forebays* mean the primary sections of a wastewater separator.
- e. *Hot well* means the reservoir of a condensing unit receiving the warm condensate from the condenser.
- f. *Petroleum refinery* means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation, cracking, extraction, or reforming of unfinished petroleum derivatives.
- g. *Refinery fuel gas* means any gas which is generated by a petroleum refinery process unit and which is combusted, including any gaseous mixture of natural gas and fuel gas.
- h. *Turnaround* means the procedure of shutting a refinery unit down after a run to do necessary maintenance and repair work and putting the unit back on stream.
- i. *Vacuum producing system* means any reciprocating, rotary, or centrifugal blower or compressor, or any jet ejector device that takes suction from a pressure below atmospheric and discharges against atmospheric pressure.
- j. *Vapor recovery system* means a system that prevents release to the atmosphere of no less than 90 percent by weight of organic compounds emitted during the operation

of any transfer, storage, or process equipment.

k. *Wastewater (oil/water) separator* means any device or piece of equipment which utilizes the difference in density between oil and water to remove oil and associated chemicals from water, or any device, such as a flocculation tank, clarifier, etc., which removes petroleum derived compounds from waste water.

(2) This rule 25.11 will apply, in accordance with 25.41, to vacuum producing systems, wastewater separators, and process unit turnarounds at petroleum refineries.

(3)a. The owner or operator of any vacuum producing systems at a petroleum refinery may not permit the emission of any noncondensable volatile organic compounds from the condensers, hot wells or accumulators of the system.

b. The emission limit under subparagraph (3)(a) of this rule shall be achieved by:

1. piping the noncondensable vapors to a firebox or incinerator; or,
2. compressing the vapors and adding them to the refinery fuel gas.

(4) The owner or operator of any wastewater (oil/water) separators at a petroleum refinery shall:

- a. provide covers and seals approved by the director, on all separators and forebays; and,
- b. equip all openings in covers, separators, and forebays with lids or seals such that the lids or seals are in the closed position at all times except when in actual use.

(5) Before February 1, 1980 the owner or operator of a petroleum refinery shall develop and submit to a director for approval a detailed procedure for minimization of volatile organic compound emissions during process unit turnaround. As a minimum, the procedure shall provide for:

- a. depressurization venting of the process unit or vessel to a vapor recovery system, flare or firebox; and,
- b. no emission of volatile organic compounds from a process unit or vessel until its internal pressure is 136 kilo Pascals (19.7 psia) or less; and,
- c. record keeping as specified by the director.

Rule 25.12. Can coating.

(1) For the purpose of this rule 25.12, the following definitions apply:

- a. *End sealing compound* means a synthetic rubber compound which is coated on to can ends and which functions as a gasket when the end is assembled on the can.
- b. *Exterior base coating* means a coating applied to the exterior of a can to provide exterior protection to the metal and to provide background for the lithographic or printing operation.
- c. *Interior base coating* means a coating applied by roller coating or spray to the interior to a can to provide a protective lining between the can metal and product.
- d. *Interior body spray* means a coating sprayed on the interior of the can body to provide a protective film between the product and the can.
- e. *Overvarnish* means a coating applied directly over ink to reduce the coefficient of friction, to provide gloss and to protect the finish against abrasion and corrosion.
- f. *Three-piece can side-seam spray* means a coating sprayed on the exterior and interior of a welded, cemented or soldered seam to protect the exposed metal.
- g. *Two-piece can exterior end coating* means a coating applied by roller coating or spraying to the exterior end of a can to provide protection to the metal.

(2) This rule will apply, in accordance with Rule 25.18(3), to coating applicator(s) and oven(s) of sheet, can or end coating lines involved in sheet basecoat (exterior and interior) and overvarnish; two-piece can exterior (basecoat and overvarnish); two and three-piece can interior body spray; two-piece can exterior end (spray or roll coat); three-piece can side-seam spray and end sealing compound operations.

(3) No owner or operator of a can coating line subject to this rule 25.12 may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds except as provided in 25.41 in excess of:

- a. 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the coating applicator from sheet basecoat (exterior and interior) and overvarnish or two-piece can exterior (basecoat and overvarnish) operations.
- b. 0.51 kilograms per liter of coating (4.2 pounds per gallon), excluding water, delivered to the coating applicator from two- and three-piece can interior body spray and two-piece can exterior end (spray or roll coat) operations.
- c. 0.66 kilograms per liter of coating (5.5 pounds per gallon), excluding water, delivered to the

coating applicator from three-piece can side-seam spray operations.

d.0.44 kilograms per liter of coating (3.7 pounds per gallon), excluding water, delivered to the coating applicator from end sealing compound operations.

(4)This rule 25.12 will apply to facilities having potential VOC emissions from can coating of 100 tons per year or greater in rural counties or 25 tons per year or greater in urban counties.

Rule 25.13. Coil coating.

(1)For the purpose of this rule 25.13, the following definitions apply:

a.*Coil coating* means the coating of any flat metal sheet or strip that comes in rolls or coils.

b.*Quench area* means a chamber where the hot metal exiting the oven is cooled by either a spray of water or a blast of air followed by water cooling.

(2)This rule 25.13 will apply, in accordance with rule 25.13(3), to the coating applicator(s), oven(s), and quench area(s) of coil coating lines involved in prime and top coat or single coat operations.

(3)No owner or operator of a coil coating line subject to this rule 25.13 may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 0.31 kilograms per liter of coating (2.6 pounds per gallon), excluding water, delivered to the coating applicator from prime and topcoat or single coat operations except as provided for on Rule 25.41.

(4)This Rule 25.13 will apply to facilities having potential VOC emissions from can coating of 25 tons per year or greater.

Rule 25.14. Fabric and vinyl coatings.

(1)For the purpose of this rule 25.14, the following definitions apply:

a.*Fabric coating* means the coating of a textile substrate with a knife, roll or rotogravure coater to impart properties that are not initially present such as strength, stability, water or acid repellency, or appearance.

b.*Vinyl coating* means applying a decorative or protective topcoat, or printing on vinyl coated fabric or vinyl sheets.

(2)This rule 25.14 will apply, in accordance with rule 25.14(3), to roll, knife or rotogravure

coater(s) and drying oven(s) of fabric and vinyl coating lines.

(3)No owner or operator of a fabric coating line or a vinyl coating line subject to this rule 25.14 may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds except as provided in 25.14 [sic] in excess of:

a.0.35 kilograms per liter of coating (2.9 pounds per gallon), excluding water, delivered to the coating applicator from a fabric coating line.

b.0.45 kilograms per liter of coating (3.8 pounds per gallon), excluding water, delivered to the coating applicator from a vinyl coating line.

(4)This rule 25.14 will apply to facilities having potential VOC emissions from fabric and vinyl coating of 25 tons per year or greater.

Rule 25.15. Metal Furniture Coating.

(1)For the purpose of this rule 25.15, the following definitions apply:

a.*Application area* means the area where the coating is applied by spraying, dipping, or flowcoating techniques.

b.*Metal furniture coating* means the surface coating of any furniture made of metal or any metal part which will be assembled with other metal, wood, fabric, plastic or glass parts to form a furniture piece.

(2)This rule 25.15 will apply, in accordance with rule 25.15(3), to the application area(s), flashoff area(s), and oven(s) of metal furniture coating lines involved in prime and topcoat or single coating operations.

(3)No owner or operator of a metal furniture coating line subject to this rule 25.15 may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 0.36 kilograms per liter of coating (3.0 pounds per gallon), excluding water, delivered to the coating applicator from prime and topcoat or single coat operations except as provided in 25.41.

(4)This rule 25.15 will apply to facilities having the potential VOC emissions from Metal Furniture Coating of 100 tons per year or greater in rural counties or 25 tons per year or greater in urban counties.

(5)This rule 25.15 shall not apply to the use of quick drying lacquers for repair of scratches and nicks that occur during assembly.

Rule 25.16. Surface coating of large appliances.

(1)For the purpose of this rule 25.16, the following definitions apply:

- a.*Application area* means the area where the coating is applied by spraying, dipping or flowcoating techniques.
- b.*Single coat* means a single film of coating applied directly to the metal substrate omitting the primer application.
- c.*Large appliances* means doors, cases, lids, panels and interior support parts of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners and other similar products.

(2)This rule 25.16 will not apply to the use of quick-drying lacquers for repair of scratches and nicks that occur during assembly.

(3)This rule 25.16 will apply, in accordance with 25.16(4), to the [application] area(s), flashoff area(s) and oven(s) of large appliance coating lines involved in prime, single or topcoat coating operations.

(4)No owner or operator of a large appliance coating line subject to this rule 25.16 may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the coating applicator from prime, single or topcoat coating operators except as provided in 25.41.

(5)This rule will apply to facilities having potential VOC emissions from surface coating of large appliances of 25 tons per year or greater.

Rule 25.17. Solvent cleaning.

(1)For the purpose of this rule 25.17, the following definition applies:

Magnet wire coating means the process of applying a coating of electrically insulating varnish or enamel to aluminum or copper wire for use in machinery.

(2)No owner or operator of a magnet wire coating oven subject to this rule 25.17 may cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 0.20 kilograms per liter of coating (1.7 pounds per gallon), excluding water, delivered to the coating applicator from magnet wire coating operations except as provided in 25.41.

(3) This rule 25.17 will apply to facilities having potential VOC emissions from Magnet Wire Coating of 100 tons per year or greater in rural areas or 25 tons per year or greater in urban areas.

Rule 25.18. Solvent metal cleaning.

(1) For the purpose of this rule 25.18, the following definitions apply:

- a. *Cold cleaning* means the batch process of cleaning and removing greasy soils from metal surfaces by spraying, brushing, flushing or immersion while maintaining the solvent below its boiling point. Wipe cleaning is not included in this definition.
- b. *Conveyorized degreasing* means the continuous process of cleaning and removing greasy soils from metal surfaces by operating with either cold or vaporized solvents.
- c. *Freeboard height* means the distance from the top of the vapor zone to the top of the degreaser tank for vapor degreasers and from the liquid surface to the top of degreaser toner for cold cleaners.
- d. *Freeboard ratio* means the freeboard height divided by the width of the degreaser.
- e. *Open top vapor degreasing* means the batch process of cleaning and removing greasy soils from metal surfaces in an open top tank by condensing hot solvent vapor on the colder metal parts.
- f. *Solvent metal cleaning* means the process of cleaning greasy soils from metal surfaces by cold cleaning or open top vapor degreasing or conveyorized degreasing.

(2) The provisions of this rule 25.18 shall apply, in accordance with rule 25.41, with the following exceptions:

- a. open top vapor degreasers with an open area smaller than 1 square meter (10.8 square feet) shall be exempt from parts (5)(c)2. and (5)(c)4. of this rule,
- b. conveyorized degreasers with an air/vapor interface smaller than 2.0 square meters (21.6 square feet) shall be exempt from subparagraph (6)(b) of this rule.

(3) This rule 25.18 will apply to facilities having potential VOC emissions from Solvent Metal Cleaning of 25 tons per year or greater.

(4) Except as provided under rules (2) and (3) of this rule, the owner or operator of a cold cleaning facility shall:

- a. equip the cleaner with a cover;
- b. equip the cleaner with a facility for draining cleaned parts; and
- c. provide a permanent, conspicuous label, summarizing the operating requirements; and,
- d. store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,
- e. close the cover whenever parts are not being handled in the cleaner; and,
- f. drain the cleaned parts for at least 15 seconds or until dripping ceases; and,
- g. if used, supply a solvent spray that is a solid fluid stream (not a fine, atomized or shower type spray) at a pressure which does not cause excessive splashing.

(5) Except as provided under paragraph (2) of this rule 25.18, the owner or operator of an open top vapor degreaser shall:

- a. equip the vapor degreaser with a cover that can be opened and closed easily without disturbing the vapor zone; and,
- b. keep the cover closed at all times except when processing work loads through the degreaser; and
- c. minimize solvent carryout by:
 - 1. racking parts to allow complete drainage; and,
 - 2. moving parts in and out of the degreaser at less than 3 meters per minute (11 feet per minute); and,
 - 3. holding the parts in the vapor zone at least 30 seconds or until condensation ceases; and,
 - 4. tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and,
 - 5. allowing parts to dry within the degreaser for at least 15 seconds or until visually dry; and,
- d. not degrease porous or absorbent materials, such as cloth, leather, wood or rope; and,
- e. not occupy more than half of the degreaser's open top area with a workload; and,

- f. not load the degreaser to the point where the vapor level would drop more than 10 centimeters (4 inches) when the workload enters the vapor zone; and,
 - g. always spray below the vapor level; and,
 - h. repair solvent leaks immediately, or shutdown the degreaser; and,
 - i. store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,
 - j. not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and,
 - k. not use ventilation fans near the degreaser opening, nor provide exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area, unless necessary to meet OSHA requirements; and,
 - l. provide a permanent, conspicuous label, summarizing the operating procedures of subrules (5)(b) through (5)(j) of this rule.
- (6) Except as provided under paragraph (3) of this rule 25.18, the owner or operator of a conveyORIZED degreaser shall:
- a. not use workplace fans near the degreaser opening, nor provide exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute square foot) of degreaser opening, unless necessary to meet OSHA requirements; and,
 - b. equip the cleaner with equipment, such as drying tunnel or rotating (tumbling) basket, sufficient to prevent cleaned parts from carrying out solvent liquid or vapor; and,
 - c. minimize openings during operation so that entrances and exits will silhouette workloads with an average clearance between the largest parts and the edge of the degreaser opening of less than 10 centimeters (4 inches) or less than 10 percent of the width of the opening; and,
 - d. provide downtime covers for closing off the entrance and exit during shutdown hours; and,
 - e. minimize carryout emissions by:

1. racking parts for best drainage; and,
2. maintaining the vertical conveyor speed at less than 3.3 meters per minute (11 feet per minute); and,
- f. store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, such that greater than 20 percent of the waste solvent (by weight) can evaporate into the atmosphere; and,
- g. repair solvent leaks immediately, or shut down the degreaser; and,
- h. not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and,
- i. place downtime covers over entrances and exits of conveyORIZED degreasers immediately after the conveyors and exhausts are shut down and not remove them until just before start-up.

Rule 25.19. Cutback Asphalt.

(1) For the purpose of this rule, the following definitions apply:

- a. *Asphalt* means a dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) in which the predominating constituents are bitumens which occur in nature as such or which are obtained as residue in refining petroleum.
- b. *Cutback asphalt* means asphalt cement which has been liquefied by blending with petroleum solvents (dilutents). Upon exposure to atmospheric conditions the dilutents evaporate, leaving the asphalt cement to perform its function.
- c. *Penetrating prime coat* means an application of low viscosity liquid asphalt to an absorbent surface. It is used to prepare an untreated base for an asphalt surface. The prime penetrates the base and plugs the voids, hardens the top, and helps bind it to the overlying asphalt course. It also reduces the necessity of maintaining an untreated base course prior to placing the asphalt pavement.

(2) No person may cause, allow, or permit the use or application of cutback asphalts for paving purposes in urban counties except for:

- a. long-term stockpile storage; or,

b.application when the ambient temperature is less than 50° F within 4 hours after the time of application; or,

c.use as a penetrating primecoat; or

d.use for base stabilization.

Rules 25.22 through 25.26. Reserved.

Rule 25.27. Manufacture of synthesized pharmaceutical products.

(1)For the purpose of this rule, the following definitions apply:

a.*Synthesized pharmaceutical manufacturing* is the manufacture of pharmaceutical products by chemical synthesis;

b.*Condenser* is a device which cools a gas stream to a temperature which removes organic compounds by condensation.

c.*Control system* is any number of control devices, including condensers, which are designed and operated to reduce the quantity of volatile organic compounds emitted to the atmosphere;

d.*Exhaust system* is a device for collecting and directing out of the work area volatile organic compound fugitive emissions from the reactor openings, centrifuge openings, and other vessel openings for the purpose of protecting workers from excessive volatile organic compounds exposure;

e.*Reactor* is a vat or vessel which may be jacketed to allow temperature control and is designed to contain chemical reactions;

(2)No owner or operator of a synthesized pharmaceutical manufacturing facility subject to this rule may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds from that facility, except as provided in Rule 25.4 or .42 or Paragraph (4) of this rule, unless:

a.From reactors, distillation operations, crystallizers, centrifuges and vacuum dryers that have the potential to emit 6.80 kg/day (15 lb/day) or more of volatile organic compounds, condensers or equivalent control systems shall be used, provided that:

1.If condensers are used, the condenser outlet gas temperature must not exceed:

- (i)-25°C when condensing volatile organic compounds of vapor pressure greater than 40.0 kPa (5.8 psi) at 20°C,
- (ii)-15°C when condensing volatile organic compounds of vapor pressure greater than 20.0 kPa (2.9 psi) at 20°C,
- (iii)0°C when condensing volatile organic compounds of vapor pressure greater than 10.0 kPa (1.5 psi) at 20°C,
- (iv)10°C when condensing volatile organic compounds of vapor pressure greater than 7.0 kPa (1.0 psi) at 20°C, or
- (v)25°C when condensing volatile organic compounds of vapor pressure greater than 3.50 kPa (0.5 psi) at 20°C, or

2.If equivalent control systems are used, the volatile organic compounds emissions must not be in excess of what would be emitted by using condensers which meet the requirements above.

b.From all dryers and production equipment exhaust systems;

- 1.Achieve at least 90 percent control efficiency if total facility uncontrolled emissions are 150 kg/day (330 lb/day) or more, or
- 2.Reduce emissions to 15.0 kg/day (33 lb/day) or less if total facility uncontrolled emissions are less than 150 kg/day (330 lb/day),

c.Provide a vapor balance system or equivalent control system with control efficiency of at least 90.0 percent for control of emissions from truck or railcar deliveries to storage tanks with capacities greater than 7,500 liters (2,000 gallons) that store volatile organic compounds with vapor pressures greater than 28.0 kPa (4.1 psi) at 20°C;

d.Install pressure/vacuum conservation vents set at plus or minus 0.2 kPa on all storage tanks that store volatile organic compounds with vapor pressures greater than 10.0 kPa (1.5 psi) at 20°C, unless a more effective control system is used,

e.Enclose all centrifuges, rotary vacuum filters, and other filters having an exposed liquid surface, where the liquid contains volatile organic compounds and exerts a total volatile organic compounds vapor pressure of 3.50 kPa (0.5 psi) or more at 20°C,

f. Install covers on all in-process tanks containing volatile organic compounds, and

g. Repair leaks of liquids containing volatile organic compounds.

(3) This rule applies to operations which are sources of volatile organic compounds, including reactors, distillation units, dryers, storage of volatile organic compounds, transfer of volatile organic compounds, extraction equipment, filters, crystallizers and centrifuges that have the potential to emit 6.8 kg/day (15 lb/day) or more in synthesized pharmaceutical manufacturing facilities have total facility potential emissions, from subject operations of volatile organic compounds of 100 or more tons per year.

(4) The owner or operator of a facility subject to this rule must:

(a) Meet the applicable increments of progress contained in the following schedule:

1. Submit final plans for the emission control techniques before April 1, 1983,

2. Award contracts or purchase orders before July 1, 1983.

3. Initiate onsite construction or installation before December 31, 1983,

4. Complete onsite construction or installation before December 1, 1984, and

5. Achieve final compliance before December 31, 1984, and

b. Certify to the director within 20 days after the deadline for each applicable increment of progress whether the required increment has been met.

Rules 25.28 through 25.40. Reserved.

Rule 25.41. Compliance schedules.

(1) *Process equipment and control device.* The owner or operator of an existing source of volatile organic compound emissions subject to the standard in this regulation proposing to install and operate a control device and/or replacement process equipment to comply shall adhere to the increments of progress contained in the following schedule:

a. Final plans for the emission control device and/or process equipment must be submitted before March 1, 1980.

b. Contracts for the emission control systems and/or process equipment must be awarded or

orders must be issued for purchase of component parts before June 1, 1980.

c. Initiation of on-site construction of control device or process equipment before January 1, 1981.

d. On-site construction or installation of the control device or process equipment completed before October 1, 1981.

e. Final compliance shall be determined before November 1, 1981 in accordance with the method(s) specified by the director.

f. Any owner or operator of an existing emission source subject to the compliance schedule of this section shall certify to the director within 20 days after the deadline for each increment of progress, whether the required increment of progress has been met.

(2) *Low solvent content coating.* The owner or operator of an existing source of volatile organic compound emission subject to the standards in this regulation proposing to employ low solvent content coating technology to comply shall adhere to the increments of progress contained in the following schedule:

a. Final plans for the application of low solvent content coating technology must be submitted before March 1, 1980.

b. Research and development of low solvent content coating must be completed before September 1, 1980.

c. Evaluation of product quality and commercial acceptance must be completed before January 1, 1981.

d. Purchase orders must be issued for low solvent content coatings and process modifications before April 1, 1981.

e. Initiation of process modifications must begin before June 1, 1981.

f. Process modifications must be completed and use of low solvent content coatings must begin before August 1, 1981.

g. Final compliance shall be determined before September 1, 1981 in accordance with the method(s) specified by the director.

h. Any owner or operator of an existing source subject to the compliance schedule of this section

shall certify to the director within 20 days after the deadline for each increment of progress, whether the required increment of progress has been met.

(3)*Equipment modification.* The owner or operator of an existing source of volatile organic compound emissions subject to the standards in this regulation proposing to comply by modifications of existing process equipment shall adhere to the increments of progress contained in the following schedule:

- a. Final plans for process modification must be submitted before March 1, 1980.
- b. Contracts for process modifications must be awarded or orders must be issued for the purchase of component parts to accomplish process modifications before June 1, 1980.
- c. Initiation of on-site construction or installation of process modifications must begin before January 1, 1980.
- d. On-site construction or installation of process modifications must be completed before October 1, 1981.
- e. Final compliance shall be determined before November 1, 1981 in accordance with the method(s) specified by the director.
- f. Any owner or operator of an existing source subject to the compliance schedule of this section shall certify to the director within 30 days after the deadline for each increment of progress, whether the required increment of progress has been met.

Rule 25.42. Individual compliance schedules.

- (1) A facility may petition for a source specific compliance schedule extending beyond those categorical compliance schedules contained in rule 25.41 only if one or more of the following conditions are satisfied:
 - a. The facility demonstrates that it is physically impossible for the source(s) in question to comply with the date(s) in the categorical schedule.
 - b. That, by allowing additional time, innovative technology will be applied and the reductions to be achieved will be significantly greater than that from the applicable emission standard. That the facility agrees that this revised value will be contained on the permit(s) as a condition of source(s) operation.

- c. Additional time is necessary to allow for the development of low solvent systems rather than apply add-on controls.
 - d. The facility in question is a part of a Statewide or multistate program to prioritize the sequence of installing controls at a number similar sources owned or controlled by the same company, and the overall compliance program is as expeditious as practicable.
- (2) Individual compliance schedules approved under this section must contain the below alphabetical increments of progress and achieve final compliance with the specified emission standard no later than July 1, 1987.
- a. Date control plan will be submitted.
 - b. Date contract will be awarded.
 - c. Date initial construction will commence.
 - d. Date construction will be completed.
 - e. Date final compliance will be achieved.
- (3) Individual compliance schedules approved under this section will be subjected to a public hearing and incorporated as a revision to the State Implementation Plan. The facility requesting such Individual Compliance Schedule shall be responsible for all costs associated with the required legal notices.
- (4) No individual compliance schedule will be granted if such a revised schedule would interfere with reasonable further progress in the county.
- (5) The petition for the individual compliance schedule must be received by the director prior to the first date contained in the applicable compliance schedule.

Rule 25.43. General provisions for test methods and procedures.

- (1) The owner or operator of any new or existing source required to comply with standards contained in this regulation shall, at his own expense, when so directed by the director, demonstrate compliance by the following methods or an alternative method approved by the director.
- (2) No volatile organic compound emissions compliance testing will be allowed, nor the results accepted, unless prior notification has been supplied to the director as required under paragraph (3) and (4) of this rule 25.43 and the director has granted

approval.

(3) Any person proposing to conduct a volatile organic compound emissions compliance test shall notify the director of the intent to test not less than 30 days before the proposed initiation of the tests so the director may, at his option, observe the test.

(4) For compliance determination, the owner or operator of any new or existing source shall be responsible for providing:

a. sampling ports, pipes, lines, or appurtenances for the collection of samples and data required by the test procedure; and,

b. safe access to the sample and data collection locations; and,

c. light, electricity, and other utilities required for sample and data collection.

(5) A copy (or copies) of the test report shall be submitted to the director by the prescribed time period in a format stipulated by the director.

Rule 25.44. Determination of volatile content of surface coatings.

(1) This method applies, in accordance with 25.43, to paint, varnish, lacquer, and surface coatings which are air-dried or force-dried.

(2) This method does not apply to any coating system requiring a special curing process such as:

a. exposure to temperatures in excess of 110°C (230°F) to promote thermal cross-linking; or,

b. exposure to ultraviolet light to promote cross-linking.

(3) For the purposes of this method, the applicable surface coatings are divided into three classes. They are:

a. Class I: General Solvent-Type Paints. This class includes white linseed oil outside paint, white soya and phthalic alkyd enamel, white linseed ophthalic alkyd enamel, red lead primer, zinc chromate primer, flat white inside enamel, white epoxy enamel, white vinyl toluene modified alkyd, white amino modified baking enamel, and other solvent-type paints not included in Class II.

b. Class II: Varnishes and Lacquers. This class includes clear and pigmented lacquers and varnishes.

c. Class III. Water-thinned paints. This class includes emulsion or latex paints and colored enamels.

(4) For the purpose of this method, a representative sample of the surface coating shall be obtained at the point of delivery to the coater or any other point in the process that the director approves.

(5) The volatile organic content of the sample shall be determined as follows:

a. Assign the coating to one of the three (3) classes in paragraph c. of this section. Assign any coating not clearly belonging to Class II or III to Class I.

b. Determine the density D_m (in grams/cubic centimeter) of the paint, varnish, lacquer, or related product according to procedure outlined in ASTM D 1475-60, Standard Method of Test for Density of Paint, Varnish, Lacquer, and Related Products. Then, depending on the class of the coating, use one of the following specified procedures to determine the volatile content:

1. Class I. Use the procedure in ASTM D 2369-73, Standard Method of Test for Volatile Content of Paints.

(i) Record the following information:

W_1 = Weight of dish and sample, grams

W_2 = Weight of dish and sample after heating, grams

S = Sample weight, grams

(ii) Compute the volatile matter content C_v (in grams/liter of paint) as follows:

$$C_v = \frac{(W_1 - W_2) (D_m) (10^3)}{S}$$

(iii) To convert grams/liter to pounds/gallon, multiply C_v by 8.3455×10^{-3} .

2. Class II. Use the procedure in ASTM D 1644-59 Method A, Standard Methods of Test for Nonvolatile Content of Varnishes (Do not use Method B).

(i) Record the following information:

A = Weight of dish, grams

B = Weight of sample used, grams

C = Weight of dish and contents after
heating, grams

(ii) Compute the volatile matter content C_v (in grams/liter) as follows:

$$C_v = \frac{(A + B - C) (D_m) (10^3)}{B^m}$$

(iii) To convert grams/liter to pounds/gallon, multiply C_v by 8.3455×10^{-3} .

3. Class III. Use the procedure in ASTM D 2369-73, Standard Method of Test for Volatile Content of Paints.

(i) Record the same information as specified for class II of this rule.

(ii) Determine the water content P (in percent water) of the paint according to the procedure outlined in Federal Standard 141a, Method 4082.1, Water in Paint and Varnishes (Karl Fischer Titration Method).

(iii) Compute the nonaqueous volatile matter content C_v (in grams/liter) as follows:

$$C_v = \frac{(W_1 - W_2 - 0.01 PS)(D_m)(10^3)}{S}$$

(iv) To convert grams/liters to pounds/gallon, multiply C_v by 8.3455×10^{-3} .

Rule 25.45. Test method for determination of volatile organic compound emission control system efficiency.

(1) The provisions of this section are generally applicable, in accordance with Rule 25.43, to any test method employed to determine the collection or control efficiency of any device or system designed, installed, and operated for the purpose of reducing volatile organic compound emissions.

(2) The following procedures shall be included in any efficiency determination:

- a. The volatile organic compound containing material shall be sampled and analyzed in a manner approved by the director such that the quantity of emissions that could result from the use of the material can be quantified.
- b. The efficiency of any capture system used to transport the volatile organic compound emissions from their point of origination to the control equipment shall be computed using accepted engineering practice and in a manner approved by the director.
- c. Samples of the volatile organic compound containing gas stream shall be taken simultaneously at the inlet and outlet of the emissions control device in a manner approved by the director.
- d. The total combustible carbon content of the samples shall be determined by a method approved by the director.
- e. The efficiency of the control device shall be expressed as the fraction of total combustible carbon content reduction achieved.
- f. The volatile organic compound mass emission rate shall be the sum of emissions from the control device, emissions not collected by the capture system and capture system losses.

Rule 25.46. Test method for determination of solvent metal cleaning organic compound emissions

- (1) This method is applicable to determining volatile organic compound emissions from solvent metal cleaning equipment in accordance with rule 25.43.
- (2) The purpose of this method is to quantify, by material balance, the amount of solvent input into a degreaser over a sufficiently long period of time so that an average emission rate can be computed.
- (3) The following procedure shall be followed to perform a material balance test:
 - a. Clean the degreaser sump before testing.
 - b. Record the amount of solvent added to the tank with a flow meter.
 - c. Record the weight and type of work load degreased each day.
 - d. At the end of the test run, pump out the used solvent and measure the amount with a flow

meter. Also, estimate the volume of metal chips and other material remaining in the emptied sump, if significant.

- e. Bottle a sample of the used solvent and analyze it to find the percent that is oil and other contaminants. The oil and solvent proportions can be estimated by weighing samples of used solvent displaced by this oil along with the volume of make-up solvent added during operations is equal to the solvent emission.

Rule 25.47. Test Procedure for determination of VOC emissions from bulk gasoline terminals.

- (1)*Use of test.* This test method is applicable to determining volatile organic compound emissions from bulk gasoline terminals in accordance with 25.43.
- (2)*Principle.* VOC mass emissions are determined directly using flow meters and hydrocarbon analyzers. The volume of liquid gasoline dispensed is determined by a computation based on the metered quantity of gasoline at the loading rack. Test results are expressed in milligrams of hydrocarbons emitted per liter of gasoline transferred.
- (3)*Summary of the Method.* This method describes the test conditions and test procedures to be followed in determining the emissions from systems installed to control volatile organic compound vapors resulting from tank truck and trailer loading operations at bulk terminals. Under this procedure, direct measurements are made to compute the hydrocarbon mass exhausted from the vapor control system. All possible sources of leaks are qualitatively checked to insure that no uncontrolled vapors are emitted to the atmosphere. The results are expressed in terms of mass hydrocarbons emitted per unit volume of gasoline transferred. Emissions are determined on a total hydrocarbon basis. If methane is present in the vapors returned from the tank trucks or trailers, provisions are included for conversion to a total nonmethane hydrocarbon basis.
- (4)*Applicability.* This method is applicable to [in?] determining VOC emission rates at tank truck and trailer gasoline loading terminals employing vapor collection systems and either continuous or intermittent vapor control systems. This method is applicable to motor tank truck and trailer loading only as per rule 25.9.
- (5)*Apparatus.* The components essential to the evaluation of emissions from gasoline loading terminals are:
- a. portable combustible gas detector equipped to read 0 to 100 percent of the lower explosive limit,

- b.flexible thermocouple with recorder,
- c.gas volume meter, sized for the expected exhaust flow rate and range,
- d.total hydrocarbon analyzer with recorder (flame ionization detector or nondispersive infrared equipped to read 0 to 10 percent by volume hydrocarbon as propane for vapor control systems which recover the vapor as liquid; or 0 to 10,000 ppm hydrocarbons as propane for incineration vapor control systems),
- e.barometer to measure atmospheric pressure,
- f.gas chromatography/flame ionization detector with a column to separate C₁ - C₇ alkanes; used if methane is present in recovered vapors or if incineration is the vapor control technique.

(6)Test requirements.

- a.No less than three 8-hour test repetitions will be performed.
- b.During the test period, all loading racks shall be open for each product line which is controlled by the system under test. Simultaneous use of more than one loading rack shall occur to the extent that such use would normally occur.
- c.Simultaneous use of more than one dispenser on each loading rack shall occur to the extent that such use would normally occur.
- d.Dispensing rates shall be set at the maximum rate at which the equipment is designed to be operated. Automatic product dispensers are to be used according to normal operating practices.
- e.Applicable operating parameters of the vapor control system shall be monitored to demonstrate that the control unit is operating at design levels. For intermittent vapor control systems employing a vapor holder, each test repetition shall include at least one fully automatic operation cycle of the vapor holder and control device. Tank trucks and trailers shall be essentially leak free as determined by the director.

(7)Basic Measurements Required. The basic measurements essential to the evaluation of emissions from gasoline loading terminals are:

- a.the amount of gasoline dispensed from gasoline dispensers,

b.leak check of all fittings and vents,

c.the following items for the processing unit exhaust:

1.temperature,

2.pressure,

3.volume of vapors,

4.hydrocarbon concentration of vapors,

5.gas chromatograph analysis of vapors if methane is present in recovered vapors.

(8)Test Procedure.

a.Calibrate and span all instruments as outlined under paragraph (10) of this rule.

b.Install an appropriately sized gas meter on the exhaust vent of the vapor control system. For those vapor control systems where size restrictions preclude the use of a volume meter; or when incineration is used for vapor control, a gas flow meter (orifice, pitot tube, annubar, etc.) is necessary. At the meter inlet, install a thermocouple with recorder. Install a tap at the volume meter outlet. Attach a sample line for a total hydrocarbon analyzer (0 to 10 percent as propane) to this tap. If the meter pressure is different than [sic--"different from"] barometric pressure, install a second tap at the meter outlet and attach an appropriate manometer for pressure measurement. If methane analysis is required, install a third tap for connection to a constant volume sample/pump evacuated bag assembly as described in Method 3, Federal Register, 36:247, December 23, 1977.

c.Measurements and data required for evaluating emissions from the system:

1.at the beginning and end of each test repetition, record the volume readings on each product dispenser on each loading rack served by the system under test,

2.at the beginning of each test repetition and each 2 hours thereafter, record the ambient temperature and the barometric pressure,

3.for intermittent vapor control systems employing a vapor holder, the unit shall be manually started and allowed to process vapors in the holder until the lower automatic cut-off is reached. This cycle should be performed immediately prior to the beginning of the test repetition before

readings required under part (3)(c)1 of this rule are taken.

4. for each cycle of the vapor control system during each test repetition, record the start and stop time, the initial and final gas meter readings, the average vapor temperature, pressure and hydrocarbon concentration. If a flow rate meter is used, record flow meter readouts continuously during the cycle. If required, extract a sample continuously during each cycle for chromatographic analysis for specific hydrocarbons,
5. for each tank truck or trailer loading during the test period, check all fittings and seals on the tanker compartments with the combustible gas detector. Record the maximum combustible gas reading for any incidents of leakage of hydrocarbon vapors. Explore the entire periphery of the potential leak source with the sample hose inlet 1 cm (0.4 inches) away from the interface.
6. during each test period, monitor all possible sources of leaks in the vapor collection and control systems with the combustible gas indicator. Record the location and combustible gas reading for any incidents of leakage.
7. for intermittent vapor control systems, the control unit shall be manually started and allowed to process vapors in the holder until the lower automatic shut-off is reached at the end of each test repetition. Record the data required under part (8)(c)4. of this rule for this manual cycle. No loading shall be in progress during this manual cycle.

(9) Calculations.

a. terminology:

T_a = Ambient temperature ($^{\circ}\text{C}$)

P_b = Barometric pressure (mm Hg)

L_t = Total volume of liquid dispensed from all controlled racks during the test period (liters)

V_e = Volume of air-hydrocarbon mixture exhausted from the processing unit (M³)

V_{es} = Normalized volume of air-hydrocarbon mixture exhausted, NM e @ 20 $^{\circ}\text{C}$, 760 mmHg

C_e = Volume fraction of hydrocarbons as exhausted mixture (volume % as C₃H₁₀/100, corrected for methane content if required)

T_e = Temperature at processing unit exhaust ($^{\circ}\text{C}$)

P_e = Pressure at processing unit exhaust (mm Hg abs)

$(M/L)_e$ = Mass of hydrocarbons exhausted from the processing unit per volume of liquid loaded,
(mg/liter),

b.1. Calculate the following results for each period of the vapor control system:

$$V_e = V_{ef} - V_{ei}, (M_3)$$

where

V_e = totalized volume flow rate and time records,

V_{ei} = initial volume.

2. normalized volume of exhausted mixture:

$$V_{es} = \frac{(0.3858 \text{ } ^{\circ}\text{K/mmHg}) V_e P_e \text{ NM}_3 @ 20^{\circ}\text{C}, 760 \text{ mmHg}}{(T_e + 273.2)}$$

3. mass of hydrocarbons exhausted from the vapor control system:

$$M_e = \frac{(1.833 \times 10^6 \text{ mgC}_3\text{H}_8) \times V_e}{\text{NM}_3 \text{ C}_3\text{H}_8} \text{ (mg)}$$

c. calculate the average mass of hydrocarbons emitted per volume of gasoline loaded:

$$(M/L)_e = \frac{M_e \text{ (mg/liter)}}{\overline{L_t}}$$

(10) *Calibrations.*

- a. Flow meters shall be calibrated using standard methods and procedures which have been approved by the director.
- b. Temperature recording instruments shall be calibrated prior to a test period and following the test period using an ice bath (0°C) and a known reference temperature source of about 35°C. Daily during the test period, use an accurate reference to measure the ambient temperature and compare the ambient temperature reading of all other instruments to this value.
- c. Manufacturer's instructions concerning warm-up and adjustments shall be followed for total hydrocarbon analyzers. Prior to and immediately after the emission test, perform a comprehensive laboratory calibration on each analyzer used. Calibration gases should be propane in nitrogen prepared gravimetrically with mass quantities of approximately 100 percent propane. A calibration curve shall be provided using a minimum of five prepared standards in the range of concentrations expected during testing;
 1. For each repetition, zero with zero gas (3 ppm C) and span with 70 percent propane for instruments used in the vapor lines and with 10 percent propane for instruments used at the vapor control system exhaust.
 2. The zero span procedure shall be performed at least once prior to the first test measurement, once during the middle of the run, and once following the final test measurement for each run.
 3. Conditions in calibration gas cylinders must be kept such that condensation of propane does not occur. A safety factor of 2 for pressure and temperature is recommended.

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