46.0 REGULATION OF VOLATILE ORGANIC COMPOUNDS

46.1 Purpose

A. It is the purpose of this Section to establish emission standards for new and existing sources of volatile organic compounds located within Knox County. The emission standards established within this Section will apply to different sources depending upon potential emissions.

B. Upon mutual agreement of any air contaminant source and the Director, an emission limit more restrictive than that otherwise specified in this section (46.0) may be established. Also, upon mutual consent of any air contaminant source and the Director, operating hours, process flow rates, or any other operating parameter may be established as a binding limit which the source must adhere to. Any items mutually agreed to shall be stated as a special condition for any permit or order concerning the source. Violation of this mutual agreement shall result in revocation of the issued permit.

46.2 Definitions

A. Unless specifically defined in this Section, the definitions from Section 13.0 will apply:

1. "Approved" shall mean approved by the Director, Knox County Air Pollution Control Department.

2. "Bottom Filling" shall mean the filling of a tank truck or stationary storage tank through an opening near the tank bottom.

3. "Bulk Gasoline Plant" shall mean 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.

4. "Bulk Gasoline Terminal" shall mean 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 a daily average throughput of more than 76,000 liters (20,000 gallons) of gasoline.

5. "Capture System" shall mean the equipment (including hoods, ducts, fans, etc.) used to contain, capture, or transport a pollutant to a control device.

6. "Coating Applicator" shall mean an apparatus used to apply a surface coating.

7. "Coating Line" shall mean a series of one or more coating applicators and any associated drying area and/or oven wherein a coating is applied, dried, and/or cured. A coating line ends at the point where the coating is dried or cured, or prior to any subsequent application of a different coating. It is not necessary to have an oven or a flashoff area in order to be included in this definition. This definition does not apply to web coating.

8. "Condensate" shall mean hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature and/or pressure and remains liquid at standard conditions.

9. "Control Device" shall mean any method, process, or equipment which removes or reduces VOC emissions to the ambient air.

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

11. "Crude Oil" shall mean 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.

12. "Custody Transfer" shall mean 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.

13. "Day" shall mean a 24-hour period beginning at midnight.

14. "Existing Source" shall mean any processes in existence or having a construction permit prior to the "Original rule certified date" for the specified paragraph.

15. "External Floating Roof" shall mean 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.

16. "Flashoff Area" shall mean the space between the application area and the oven.

17. "Gasoline" shall mean any petroleum distillate having a Reid vapor pressure of 27.6 kPa (4 psi) or greater.

18. "Intermittent Vapor Control System" shall mean 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.

19. "Knife Coating" shall mean 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.

20. "Loading Rack." shall mean 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.

21. "New Source" shall mean all other processes not defined in Definition 46.2-A.14 as an existing source.

22. "Organic Material" shall mean a chemical compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

23. "Oven" shall mean a chamber within which heat is used to bake, cure, polymerize, and/or dry a surface coating.

24. "Petroleum Liquid" shall mean crude oil, condensate, and any finished or intermediate products manufactured or extracted in a petroleum refinery.

25. "Prime Coat" shall mean the first film of coating applied in a multicoat operation.

26. "Reid Vapor Pressure" shall mean the absolute vapor pressure of volatile crude oil and volatile petroleum liquids except liquified petroleum gases as determined by American Society for Testing and Materials, Part 17, 1973, D-323-72 (Reapproved 1977).

27. "Roll Coating" shall mean the application of a coating material to a substrate by means of hard rubber, steel, or other composition rolls.

28. "Rotogravure Coating" shall mean 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.

29. "Solvent" shall mean organic materials which are liquid at standard conditions and which are used as dissolvers, viscosity reducers, or cleaning agents.

30. "Topcoat" shall mean the final film of coating applied in a multiple coat operation.

31. "True Vapor Pressure" shall mean 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.

32. Vapor Collection System" shall mean a vapor transport system which uses direct displacement by the liquid loaded to force vapors from the tank into a vapor control system.

33. "Vapor Control System" shall mean a system approved by the Director that is designed to prevent release to the atmosphere of organic compounds in the vapors displaced from a tank during the transfer of gasoline.

34. "Volatile Organic Compounds" (VOC) means 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-trichlorethane (methly

chloroform), 1,1,2-trichloro-1,2,2-trifluroethane (CFC-113); trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CF-12); chlorodifluoromethane (HCFC-22); trifluoromethane (HFC-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 (HFC-134a); 1,1-dichloro 1-fluorethane (HCFC-141b); 1-chloro 1,1-difluoroethane (HCFC-142b); 2-chloro-1,1,1,2-tetrafluoroethane (HFC124); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); cyclic, branched, or linear completely methylated siloxandes; acetone; perchloroethylene (tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca); 1,3-dichloro-1,1,2,2,3-pentafluropropane (HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee); difluoromethane (HFC-32); ethylfluoride (HFC-161); 1,1,1,3,3,3-hexafluoropropane (HFC-236-fa); 1,1,2,2,3-pentafluoropropane (HFC-245ca); 1,1,2,3,3-pentafluoropropane (HFC-245ea); 1,1,1,2,3-pentafluoropropane (HFC0245eb); 1,1,1,3,3-pentafluoropropane (HFC-245fa); 1,1,1,2,3,3-hexafluropropane (HFC-236ea); 1,1,1,3,3-pentafluorobutane (HFC-365mfc); chlorofluoromethane (HCFC-31); 1 chloro-1-fluoroethane (HCFC-151a), 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a); 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C 4F 90CH 3); 2-(difluoro-methoxymethly)-1,1,1,2,3,3,3-heptafluoropropane ([CF3] 2CFCF 20CH 3); 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C 4F 90C 2H 5); 2-(ethoxy-difluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ([CF 3] 2CFCF 20C 2H 5); methyl acetate and perfluorocarbon compounds which fall into these classes:

(i) Cyclic, branched or linear, completely fluorinated alkanes,

(ii) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations,

(iii) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations, and

(iv) Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

46.3 <u>Standards for New Sources</u>

A. New sources identified as having potential VOC emissions of 100 tons per year or greater shall utilize LAER. Modified sources with potential VOC emissions of 100 tons per year or greater shall utilize controls to be determined by the Director on a case by case basis; such controls may include LAER. New and modified sources having potential VOC emissions less than 100 tons per year shall utilize reasonable and proper controls as determined by the Director.

B. If new or modified sources at a facility occurring 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.

C. A new source is not subject to paragraphs 46.6 through 46.15. These paragraphs only regulate existing sources.

46.4 Alternate Emission Standard

A. Facilities with process emission source(s) regulated by this Section 46.0 with a certificate of alternate control shall not emit volatile organic compounds in excess of the limits on said certificate. This standard is in lieu of the emission standards contained in other rules of this section. Only sources with an emission standard in Section 46.0 are eligible for inclusion in the certificate.

B. The owner or operator of any facility having process emission sources regulated by other rules in this Section can apply to the Director for a certificate of alternate control for a facility and he must grant the request if the following conditions are met:

1. The facility is reducing or will be after a specified date taking actions to reduce emissions of volatile organic compounds at least as much as is required under the other rules of this Section even though specific process emission source(s) in the facility may not be meeting the standards specified in the other rules of this Section. The reduction in emissions required above shall be based on the manufacturing process as it existed on the rule certified date for the rule for which the source is subject. The purpose of this provision is to allow credit toward compliance by use of process changes which reduce the total VOC emissions to the atmosphere.

2. If a specified future date is involved, this date must be acceptable to and approved by the Director and be specified in a schedule of compliance as a condition on the certificate. This schedule must conform with the requirements of paragraph 46.16.

3. A means satisfactory to the Director must be present so that he and/or his representative can determine that this alternative emission control method is being implemented and complied with.

4. A fee ($400 minimum) based on the estimated cost as determined by the Director has been paid to the Department at the time application is made to cover the cost of review of the request for the certificate of alternate control.

5. All process emission sources commenced on or after the effective date of a rule or rules in Section 40.0 and Tennessee State Air Pollution Regulation 1200-3-9 "Prevention of Significant Deterioration" limiting emissions of volatile organic compounds, are meeting the limits specified in those rules.

6. No credit can be given for reduction of emissions in determining if the requirements of subparagraph (1.) of this paragraph are met if another rule would require that reduction anyway.

7. VOC emission limit equivalency calculations will be performed on a solids applied

basis.

8. Volatile compounds which are not defined as being volatile organic compounds for the purpose of photochemical oxidant control shall be treated as water in determining the volatile organic compound content of a material.

9. All alternate compliance plans must be submitted to EPA for approval as a source specific revision to the State Implementation Plan, unless the alternate means of control is comprised soley of hardware.

C. After approval of the alternate emission control application, the standards approved under this section must be subjected to a public hearing. The owner or operator shall reimburse the Department for all costs associated with publishing the required legal notice.

D. The owner or operator of the facility must:

1. file or post on the operating premises the certificate of alternative control

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

3. meet other conditions specified in accordance with paragraph (H.) of this rule.

E. The certificate of alternate control can be revoked for any violation of the conditions under which it was issued.

F. The certificate of alternate control does not relieve the owner or operator of the duty for meeting all emission requirements in other rules for process emission sources commenced after the effective date of the rule.

G. Upon revocation of the certificate of alternative control the process emission sources at the facility must comply with all other rules in this section.

H. The certificate of alternate control may specify alternate test methods to determine compliance or different averaging times (so long as this 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 paragraph B.2. of this rule. The certificate must contain as conditions specific standards for each emission source involved.

I. Any cross-line averaging must be submitted to EPA as a source specific revision to the State Implementation Plan, and must meet the provisions of EPA's emission trading (ET) policy (51 FR 43814, 12-4-86).

46.5 Standards for Existing Sources not Specified Under Paragraphs 46.6 through 46.15

Any existing source which is described by Tennessee State Air Pollution Control Regulations Chapter 12-3-18 that is not regulated by this Section shall be regulated by reference by

Tennessee State Air Pollution Regulations Chapter 12-3-18.

46.6 Petroleum Liquid Storage

A. For the purpose of this rule, internal floating roof shall mean a cover or roof in a fixed roof tank which rests upon or is floated 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.

B. This rule will apply, to all fixed roof storage vessels with capacities greater than 40,000 gallons containing volatile petroleum liquids whose true vapor pressure is greater than 10.5 kPa (1.52 psia).

C. This rule will not apply to volatile petroleum liquid storage vessels having capacities less than 420,000 gallons used to store produced crude oil and condensate prior to lease custody transfer.

D. Except as provided under paragraph (C.) of this rule, no owner or operator of an effected source under paragraph B. of this rule shall permit the use of such source except as provided by an approved compliance schedule unless:

1. 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,

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

3. 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,

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

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

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

    c. rim vents,if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting; and,

5. routine inspections are conducted through roof hatches once per month; and,

6. A complete inspection of cover and seal is conducted as specified by the Director; and,

7. Records are maintained as specified in Section 46.20.

46.7 Bulk Gasoline Plants

A. For the purpose of this rule, the following definitions apply:

1. "Splash Filling" shall mean the filling of a tank truck or stationary storage tank through a pipe or hose whose discharge opening is above the surface level of the liquid in the tank being filled.

2. "Submerged Filling" shall mean the filling of a tank truck or stationary tank through a pipe or hose whose discharge opening is entirely submerged when the liquid level is six inches above the bottom of the container.

3. "Vapor Balance System" shall mean 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.

B. This rule will apply, in accordance with an approved compliance schedule, 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.

C. This rule will not apply to:

1. stationary storage tanks of less than 2,000 gallons capacity

2. bulk plants with an annual average working daily throughput of less than 4,000 gallons, provided records of throughput are maintained and reported to the Director annually, and provided all stationary storage tanks and tank trucks or trailers are equipped with submerged fill pipes.

D. Except as provided under paragraph (C.) of this rule, no Owner or operator of a bulk gasoline plant (tank truck or trailer) shall load or unload gasoline from a tank, tank truck, or trailer unless each tank, tank truck, and trailer is equipped with a vapor balance system as described under paragraph(F.)of this rule and approved by the Director.

1. each tank is equipped with a submerged fill pipe, approved by the Director; and,

2. each tank is equipped with a fill line whose discharge opening is entirely submerged when the liquid level is eighteen inches above the bottom of the tank.

E. 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:

1. the transfer is conducted in accordance with paragraph (D.) of this rule; and,

2. the vapor balance system is in good working order and is connected and operating; and,

3. tank truck or trailer hatches are closed at all times during loading operations; and,

4. there are no leaks in the tank trucks' or trailers' pressure/vacuum relief valves and hatch covers, nor the truck tanks or storage tanks associated vapor and liquid lines

during loading or unloading; and,

5. the pressure relief valves on storage vessels and tank trucks or trailers are set to release at no less than 4.8 kPa (0.7 psi) or the highest possible pressure (in accordance with state or local fire codes, or the National Fire Prevention Association guidelines).

F. Vapor balance systems required under paragraph (D.) of this rule shall consist of the following major components:

1. a vapor space connection on the stationary storage tank and 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; and,

2. 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.

G. 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.

46.8 <u>Bulk Gasoline Terminals</u>

A. This rule will apply, in accordance with an approved compliance schedule to bulk gasoline terminals and the appurtenant equipment necessary to load the tank truck or trailer compartments.

B. No person may load gasoline into any tank trucks or trailers from any bulk gasoline terminal unless:

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

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

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

c. a control system, demonstrated to have control efficiency equivalent to or greater than parts B.1. a or B. 1. b of this section and approved by the Director; and

d. Any alternate means of control must be comprised soley of hardware.

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

3. 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. all loading and vapor lines are equipped with fittings which are vapor-tight.

C. Sources effected under subparagraph (B.1.) 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.

D. Sources effected under paragraph (A.) may not:

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

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

46.9 <u>Solvent Metal Cleaning</u>

A. For the purpose of this rule, the following definitions apply:

1. "Cold Cleaning" shall mean 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.

2. "Conveyorized Degreasing" shall mean the continuous process of cleaning and removing greasy soils from metal surfaces by operating with either cold or vaporized solvents.

3. "Freeboard Height" shall mean 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.

4. "Freeboard Ratio" shall mean the freeboard height divided by the width oil the degreaser.

5. "Open Top Vapor Degreasing" shall mean 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.

6. "Solvent Metal Cleaning" shall mean the process of cleaning greasy soils from metal surfaces by cold cleaning or open top vapor degreasing or conveyorized degreasing.

B. The provisions of this rule shall apply, in accordance with an approved compliance schedule, with the following exceptions:

1. open top vapor degreasers with an open area smaller than 1 square meter (10.8 square feet) shall be exempt from parts E.3.b. and E.3.d. of this rule,

2. conveyorized degreasers with an air/vapor interface smaller than 2.0 square meters (21.6 square feet) shall be exempt from subparagraph F.2. of this rule,

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

D. Except as provided under paragraphs (B.) and (C.) of this rule, the owner or operator of a cold cleaning facility shall:

1. equip the cleaner with a cover;

2. equip the cleaner with a facility for draining cleaned parts; and,

3. provide a permanent, conspicuous label, summarizing the operating requirements; and,

4. 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,

5. close the cover whenever parts are not being handled in the cleaner; and,

6. drain the cleaned parts for at least 15 seconds or until dripping ceases; and,

7. if used, supply a solvent spray that is a solid fluid stream (not a fine, automized or shower type spray) at a pressure which does not cause excessive splashing.

E. Except as provided under paragraph b. of this rule, the owner or operator of an open top vapor degreaser shall:

1. equip the vapor degreaser with a cover that can be opened and closed easily without disturbing the vapor zone; and,

2. keep the cover closed at all times except when processing work loads through the degreaser; and,

3. minimize solvent carryout by:

a. racking parts to allow complete drainage; and,

b. moving parts in and out of the degreaser at less than 3.3 meters per minute (11 feet per minute); and,

c. holding the parts in the vapor zone at least 30 seconds or until condensation ceases; and,

d. tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and,

e. allowing parts to dry within the degreaser for at least 15 seconds or until visually dry; and,

4. not degrease porous or absorbent materials such as cloth, leather, wood, or rope; and,

5. not occupy more than half of the degreaser's open top area with a workload; and,

6. 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,

7. always spray below the vapor level; and,

8. repair solvent leaks immediately, or shutdown the degreaser; and,

9. 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,

10. not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and,

11. not use ventilation fans near the degreaser opening, nor provide exhaust ventilation exceeding 20 cubic meters per minute per souare meter (65 cubic feet per minute per square foot) of degreaser open area, unless necessary to meet OSHA requirements; and,

12. provide a permanent, conspicuous label, summarizing the operating procedures of subparagraphs (E.2.) through (E.10.) of this rule.

F. Except as provided under paragraph (C.) of this rule, the owner or operator of a conveyorized degreaser shall:

1. 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,

2. 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,

3. 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,

4. provide downtime covers for closing off the entrance and exit during shutdown hours; and,

5. minimize carryout emissions by:

   a. racking parts for best drainage; and,

   b. maintaining the verticle conveyor speed at less than 3.3 meters per minute (11 feet per minute); and,

6. 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,

7. repair solvent leaks immediately, or shut down the degreaser; and,

8. not operate the cleaner so as to allow water to be visually detectable in solvent exiting the water separator; and,

9. 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.

46.10 Cutback Asphalt

A. For the purpose of this rule, the following definitions apply:

1. "Asphalt" shall mean 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.

2. "Cutback Asphalt" shall mean asphalt cement which has been liquefied by blending with petroleum solvents (diluents). Upon exposure to atmospheric conditions the diluents evaporate, leaving the asphalt cement to perform its function.

3. "Penetrating Prime Coat" shall mean 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.

B. No person may cause, allow, or permit the use or application of cutback asphalts for paving purposes in Knox County except for:

1. long-term stockpile storage; or,

2. application when the ambient temperature is less than 50^{o} F within 4 hours after the time of application; or,

3. use as a penetrating prime coat.

46.11 Surface Coating of Miscellaneous Metal Parts and Products

A. For the purpose of this rule, the following definitions apply:

1. "Air Dried Coating" is a coating which is dried by the use of air or forced warm air at temperatures up to 90^{o} C (194^{o} F);

2. "Clear Coating" is a coating which lacks color and opacity or is transparent and uses the undercoat as a reflectant base or undertone color;

3. "Extreme Performance Coating" is a coating designed for extreme environmental conditions;

4. "Extreme Environmental Conditions" is exposure to outdoor conditions most all of the time, temperatures consistently above 95° C, detergents, abrasive and scouring agents, solvents, corrosive atmospheres, or similar environmental conditions.

5. "Coating Operation" includes all equipment which applies, conveys, and dries a surface coating, including, but not limited to, spray booths, flow coaters, flashoff areas, air dryers, and ovens.

6. "Top Coating" includes all coatinas other than prime coatings.

B. No owner or operator of a coating operation subject to this rule may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds from that operation in excess of the following, except as provided for in 46.4 or an approved compliance schedule.

1. 0.52 kg/l (4.3 lb/gal) of coating, excluding water, delivered to a coating applicator in a clear coating operation,

2. 0.43 kg/l (3.5 lb/gal) of coating, excluding water, delivered to a coating applicator in an air dried coating operation,

3. 0.43 kg/l (3.5 lb/gal) of coating, excluding water, delivered to a coating applicator in an extreme performance coating operation, or

4. 0.36 kg/l (3.0 lb/gal) of coating, excluding water, delivered to a coating applicator in all other coating operations.

5. Volatile compounds which are not defined as being volatile organic compounds for the purpose of photochemical oxidant control shall be treated as water in determining the volatile organic compound content of a material.

6. The compliance time frame associated with each emission limit shall be no more than 24 hours (daily).

C. If more than one emission limitation in Paragraph B applies to a specific coating operation, then the least stringent emission limitation shall be applied.

D. This rule applies to surface coating of the following miscellaneous metal parts and products:

1. Large farm machinery (harvesting, fertilizing and planting machines, tractors, combines, etc.);

2. Small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.);

3. Small appliances (fans, mixers, blenders, crock pots, dehumidifers, vacuum cleaners, etc.);

4. Commercial machinery (office equipment, computers and auxiliary equipment,

typewriters, calculators, vending machines, etc.);

5. Industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.);

6. Fabricated metal products (metal covered doors, frames, etc.); and

7. Any other industrial category which coats metal parts or products under the Standard Industrial Classification Code of Major Group 33 (primary metal industries), Major Group 34 (fabricated metal products), Major Group 35 (nonelectric machinery), Major Group 36 (electrical machinery), Major Group 37 (transportation equipment), Major Group 38 (miscellaneous instruments), and Major Group 39 (miscellaneous manufacturing industries).

E. This rule does not apply to the surface coating of the following metal parts and products:

1. Automobiles and light-duty trucks;

2. Metal cans;

3. Flat metal sheets and strips in the form of rolls or coils;

4. Magnet wire for use in electrical machinery;

5. Metal furniture;

6. Large appliances;

7. Exterior surface areas of airplanes;

8. Automobile refinishing;

9. Customized top coating of automobiles and trucks, if production is less than 35 vehicles per day;

10. Marine vessles, and

11. Storage vessels.

F. This rule applies to facilities having potential emissions from coating operations not otherwise exempt from this rule of volatile organic compounds of 25 or more tons per year.

G. Proof of compliance with the standards of this rule shall be provided by:

1. Methods approved by the Director and consistent with:

a. EPA Guideline Series document, "Measurement of Volatile Organic Compounds", EPA-450/2-78-041,

b. Appendix A of "Control of Volatile Organic Emissions from Existing

Stationary Sources - Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks," EPA-450/2-77-008, and

c. Paragraph 46.17.

2. Certification by the manufacturer of the composition of coatings, if supported by batch formulation records and approved by the Director, may be accepted as the coatinqs analyses, and

3. Monitoring of process equipment and emission control equipment as required by the Director to confirm continued compliance.

46.12 Leaks from Vapor Collection Systems

A. For the purpose of this rule, "Vapor Collection System" is a vapor transport system which directs vapors from the vessel being loaded into either a vessel being unloaded or a vapor control system or vapor holding tank.

B. No owner or operator of a gasoline tank truck, vapor control system, or vapor collection system subject to this rule may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds, except as provided by 46.4 or an approved compliance schedule, unless the following requirements are satisfied:

1. No owner or operator of a vapor collection system, a vapor control system, or gasoline loading equipment subject to this rule may allow loading or unloading unless the system or equipment:

a. Is designed and operated in a manner that prevents:

(1) Gauge pressure from exceeding 4,500 pascals (18 in. of H_20) in gasoline tank truck;

(2) A measurement equal to or greater than 100 percent of the lower explosive limit (LEL, measured as propane) at 2.5 centimeters from all points on the perimeter of a potential leak source during loading or unloading operations at bulk plants, and bulk terminals; and

(3) Avoidable visible liquid leaks during loading or unloading operations at bulk plants and bulk terminals; and

b. Is repaired and retested or reinspected as expeditiously as practical but not later than within 30 days of discovery of a defect which prohibits compliance with B.I.a.

2. Records of testing and repairs shall be maintained and identify the vapor collection system or vapor control system; the date of the test or repair; and the type of repair and the date of retest. Records must be maintained for 2 years after the date the testing or repair is completed. Records of tests shall contain data required by the Director to verify compliance with the standards of this rule, and

3. Copies of subject records and reports shall be made available to the Director upon verbal or written request, at any reasonable time.

C. The Director shall test or inspect or require testings or inspection of a vapor collection system or vapor control system to confirm continuing compliance with the standards of B.1. and shall establish a testing or inspection schedule to assure continuing compliance.

D. This rule is applicable to vapor collection and control systems at bulk plants and bulk terminals regulated by Rules 46.7 and 46.8.

E. Proof of compliance with the standards of this rule shall be consistent with the requirements of Rule 46.16 and provided by monitoring to confirm the continuing existence of leaktight conditions, approved by the Director and consistent with the procedures described in Appendix B of the QAQPS Guideline Series document, "Control of Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", EPA-450/2-78-051, or an equivalent procedure approved by the Director.

46.13 Petroleum Liquid Storage in External Floating Roof Tanks

A. For the purpose of this rule, the following definitions apply:

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

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

3. "Waxy, Heavy Pour Crude Oil" is a crude oil with a pour point of 50° F or higher as determined by the American Society for Testing and Materials Standards D97-66, "Test for Pour Point of Petroleum Oils".

B. No owner or operator of a storage vessel subject to this rule may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds from that vessel, except as provided in Rule 46.4 or an approved compliance schedule unless:

1. The vessel has been fitted with:

a. A continuous secondary seal extending from the floating roof to the tank wall (rim-mounted secondary seal) for which:

(1) There are no visible holes, tears, or other openings in the seals or seal fabric;

(2) The seals are intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall; and

(3) For vapor mounted primary seals, the accumulated area of gaps exceeding 0.32 cm (1/8 in.) in width between the secondary seal and

the tank wall shall not exceed 2.12 cm^2 per meter of tank diameter (1.0 $in.^2$ per ft. of tank diameter), or

b. A seal, closure, or other device or devices which control volatile organic compound emissions with an effectiveness equal to or greater than a seal as described in B.l.a.

2. Openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves, are:

a. Equipped with covers, seals, or lids in the closed position except when the openings are in actual use and

b. Equipped with projections into the tank which remain below the liquid surface at all times.

3. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;

4. Rim vents are set to open when the roof is being floated off the leg supports or at the manufacturer's recommended setting,

5. Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers which cover at least 90 percent of the area of the opening;

6. Measurements and inspections are performed annually;

7. Records of the types of volatile petroleum liouids stored, the maximum true vapor pressure of the liquid as stored, and the results of measurements and inspections performed are maintained; and

8. Records required to be maintained shall be retained by the owner or operator for a minimum of two years after the date on which the record was made and be made available to the Director upon verbal or written request.

C. The Director may require more frequent inspections or modify monitoring and recordkeeping requirements when necessary to accomplish the purposes of this rule.

D. This rule:

1. Applies to petroleum liquid storage vessels equipped with external floating roofs, having capacities greater than 150,000 liters (40,000 gal) but

2. Does not apply to petroleum liquid storage vessels which:

a. Are used to store waxy, heavy pour crude oil;

b. Have capacities less than 1,600,000 liters (420,000 gal) and are used to store crude oil and condensate prior to lease custody transfer;

c. Contain petroleum liquid with a true vapor pressure of less than 10.5 kPa (1.5 psia);

d. Contain petroleum liquid with a true vapor pressure of less than 27.6 kPa (4.0 psia) and:

(1) Are of welded construction and

(2) Possess a metallic-type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid filled type seal, or other closure device of demonstrated equivalence approved by the Director, or

e. Are of welded construction, equipped with a metallic-type shoe primary seal, and has a secondary seal from the top of the shoe seal to the tank wall (shoe-mounted secondary seal) or a device of demonstrated equivalence approved by the Director.

E. Compliance weith B.1.a.(3) shall be determined by measuring the length and width of all gaps around the circumference of the secondary seal in each place where a 0.32 cm (1/8 in.) uniform diameter probe passes freely (without forcing or binding against the seal) between the seal and tank wall and summing the areas of the individual gaps.

46.14 <u>Perchloroethylene Dry Cleaning</u>

A. For the purpose of this rule, "Perchloroethylene Dry Cleaning" is the cleaning of fabrics in perchloroethylene solvent by means of one or more washes in the solvent, extraction of excess solvent by spinning, and drying by tumbling in an airsteam, the operation including but is not limited to washers, dryers, filter and purification systems, waste disposal systems, holding tanks, pumps, and attendant piping and valves.

B. No owner or operator of a perchloroethylene dry cleaning facility subject to this rule may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds from the operation, except as provided in Rule 46.4 or an approved compliance plan unless the owner or operator shall:

1. Vent the dryer exhaust through a carbon adsorption system or equally effective control device;

2. Emit no more than 100 ppmv of volatile organic compounds from the dryer control device before dilution;

3. Maintain all components to prevent leaking of liquid volatile organic compounds;

4. Cook or treat all diatomaceous earth filters so that the residue contains 25 kg or less of volatile organic compounds per 100 kg of wet waste material;

5. Not exceed the allowan ce of volatile organic compounds from all solvent stills of 60 kg or less per 100 kg of wet waste material;

6. Drain all filtration cartridges, in the filter housing, for at least 24 hours before discarding cartridges; and

7. When possible, dry all drained cartridges without emitting volatile organic compounds to the atmosphere.

C. Subparagraphs B.1. and B.2. do not apply to a facility if:

1. The facility is coin-operated,

2. Insufficient steam capacity is available for desorbing of adsorption equipment, or

3. The Director determines that space is not available to accommodate adsorption equipment.

D. The rule applies to facilities having potential emissions from subject perchloroethylene dry cleaning of volatile organic compounds of 25 or more tons per year.

E. When so directed and required by the Director, proof of compliance with the standards of this rule shall be provided:

1. For B.1, B.3, B.6, and B.7 by means of visible inspection,

2. For B.2 by methods approved by the Director and consistent with EPA Guidelines Series document, "Measurement of Volatile Oroanic Compounds", EPA-450/2-78-041,

3. For B.4 and B.5 by methods approved by the Director and consistent with the procedure in the American National Standards Institute paper, "Standard Method of Test for Dilution of Gasoline Engine Crankcase Oils", and

4. Consistent with Rule 46.17.

46.15 Graphic Arts - Rotogravure and Flexography

A. For the purpose of this rule, the following definitions apply:

1. "Packaging Rotogravure Printing" is rotogravure printing upon paper, paper board, metal foil, plastic film, and other substrates, which are in subsequent operations formed into packaging products and labels for articles to be sold.

2. "Publication Rotogravure Printing" is rotogravure printing upon paper which is subsequently formed in books, magazines, catalogues, brochures, directories, newspaper supplements, and other types of printed materials intended for either external or in-house use.

3. "Flexographic Printing" is the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of rubber or other elastomeric materials.

4. "Rotogravure Printing" is the application of words, designs, and pictures to a substrate by means of a roll printing technique which involves and intaglio or

recessed image areas in the form of cells.

5. "Roll Printing" is the application of words, designs, and pictures to a substrate usually by means of a series of hard rubber or steel rolls each with only partial coverage.

6. "Coating" is the application of a uniform layer of material across the width of the substrate surface.

7. "Printing Operation" includes all printing, coating, oven, and drying units in a printing line.

B. No owner or operator of a printing facility subject to this rule may cause, allow, or permit the discharge into the atmosphere of any volatile organic compounds from a printing operation, except as provided in Rule 46.4 or an approved compliance plan unless:

1. The volatile fraction of the ink, as it is applied to the substrate, contains 25.0 percent by volume or less of organic compounds and 75.0 percent by volume or more of water; or

2. The ink, less its water content, as it is applied to the substrate, contains 60.0 percent by volume or more nonvolatile material; or,

3. The owner or operator installs and operates an emission reduction system demonstrated to provide an overall reduction in volatile organic compound emissions, as compared with uncontrolled emissions, of at least:

a. 75.0 percent where a publication rotogravure process is employed;

b. 65.0 percent where a packaging rotogravure process is employed; and,

c. 60.0 percent where a flexographic printing process is employed.

C. This rule applies to packaging rotogravure, publication rotogravure, and flexographic printing operations.

D. This rule applies to facilities having potential emissions from subject printing operations of volatile organic compounds of 100 or more tons per year.

E. Proof of compliance with the standards of this rule shall be provided by:

1. Methods approved by the Director and consistent with:

a. EPA Guidelines Series document, "Measurement of Volatile Organic Compounds", EPA-450/2-78-041;

b. Appendix A of "Control of Volatile Organic Emissions from Existing Stationary Sources - Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks", EPA-450/2-77-008; and

c. Section 46.17

2. Certification by the ink manufacturer of the composition of the ink, if supported by actual batch formulation records and approved by the Director, may be accepted as an ink solvent analysis; and

3. Monitoring of process equipment and emission control equipment as required by the Director to confirm continued compliance.

46.16 Compliance Schedules

A. Compliance schedules approved under this section must contain the below increments of progress

1. Date control plan will be submitted.

2. Date contract will be awarded.

3. Date initial construction will commence.

4. Date construction will be completed.

5. Date final compliance will be achieved.

B. A copy of the compliance schedule signed by the owner or operator must be received by the Director prior to the first date contained in the applicable compliance schedule.

C. The owner or operator of a facility subject to these rules shall certify to the Director within 20 days after the deadline for each applicable increment of progress whether the required increment has been met.

46.17 General Provisions for Test Methods and Procedures

A. The owner or operator of any new or existing source required to comply with standards contained in this section shall, at his own expense, when so directed by the Director, demonstrate compliance by a method approved by the Director.

B. 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 (C.) and (E.) of this rule and the Director has granted approval.

C. 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.

D. Volatile organic compound emission compliance testing shall conform to EPA approved test methods. Tests to determine the VOC content of coatings must conform to EPA Method 24. Additionally, EPA or the Department may verify test data submitted by companies with independent tests, and EPA or the Department conducted tests will take precedence. All alternate compliance plans, such as cross-line averaging, must be submitted to EPA for

approval as a source specefic SIP revision unless the alternate control plan is comprised soley of add-on controls or unless the alternate control plan is subject to an EPA approved generic rule contained in the SIP.

E. For compliance determination, the owner or operator of any new or existing source shall be responsible for providing:

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

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

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

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

46.19 Compliance Certification, Recordkeeping, and Reporting Procedures for Coating Sources

A. To establish the records required under this section, the volatile organic compound (VOC) content of each coating, as applied, and the efficiency of each control device shall be determined by the applicable test methods and procedures specified in Section 27.0 and 46.17.

B. Requirements for coating sources exempt from emission limitations:

Any owner or operator of a coating line or operation that is exempt from the emission limitations of Sections 46.5 through 46.15 because combined VOC emissions from all coating lines and operations at the facility are below the applicability threshold specified in the individual sections, before the application of capture systems and control devices, shall comply with the following:

1. Certification: The owner or operator of a facility referenced in 46.19.B shall certify to the Director that the facility is exempt by providing the following:

a. The name and location of the facility.

b. The address and telephone number of the person responsible for the facility.

c. Identification of subject sources.

d. The time at which the facility's "day" begins if a time other than midnight local time is used to define "day".

e. A declaration that the facility is exempt from the emission limitations of 46.5 through 46.15 because combined VOC emission from all coating lines and operations at the facility are below the applicability threshold before the applications of capture systems and control devices, and

f. Calculations of the daily-weighted average that demonstrate that the combined VOC emissions from all coating lines and operations at the facility for a day representative of current maximum production levels are 6.8 kilograms (kg) (15 pounds [lb]) or less before the application of capture systems and control devices.

The following equation shall be used to calculate total VOC emissions for that day:

$$T = \sum_{i=1}^{N} A_i B_i$$

where:

T = Total VOC emissions from coating lines and operations at the facility before the application of capture systems and control devices in units of kg/day (lb/day);

n = Number of different coatings applied on each coating line or each operation at the facility;

i = Subscript denoting an individual coating;

A_i = Mass of VOC per volume of coating (i) (minus water and/or exempt compounds), as applied, used at the facility in units of kilograms VOC per liter (kg VOC/L) (pounds VOC per gallon [lb VOC/gal]); and

B_i = Volume of coating (i) (minus water and/or exempt compounds), as applied, used at the facility in units of liters per day (L/day) (gallons per day [gal/day]). The instrument or method by which the owner or operator accurately measured or calculated the volume of each coating, as applied, used shall be described in the certification to the Director.

2. Recordkeeping: The owner or operator of a facility referenced in 46.19.B shall collect and record all of the following information each day and maintain the information at the facility for a period of three years:

a. The name and identification number of each coating, as applied.

b. The mass of VOC per volume (minus water and/or exempt compounds) and the volume of coating (i) (minus water and/or exempt compounds), as applied, used each day.

c. The total VOC emissions at the facility, as calculated using the equation under 46.19.B.1.b.

3. Reporting: The owner or operator of a facility referenced in 46.19.B shall notify the Director of any record showing that combined VOC emission from all coating lines and operations at the coating facility exceed 6.8 kg (15 lb) on any day, before the application of capture systems and control devices. A copy of such record shall be sent to the Director within 30 days after the exceedance occurs.

C. Requirements for coating sources using complying coatings:

Any owner or operator of a coating line or operation subject to the limitations of 46.5, 46.11, and 46.15 and complying by means of the use of complying coatings shall comply with the following:

1. Certification: Upon startup of a new coating line or operation, or upon changing the method compliance for an existing subject coating line or operation from daily-weighted averaging or control devices to the use of complying coatings, the owner or operator of a coating line or operation referenced in 46.19.C shall certify to the Director that the coating line or operation is or will be in compliance with the requirements of the applicable section. Such certification shall include:

   a. The name and location of the facility.

   b. The address and telephone number of the person responsible for the facility.

   c. Identification of subject sources.

   d. The time at which the facility's "day" begins if a time other than midnight local time is used to define "day".

   e. The name and identification number of each coating, as applied, on each coating line or operation; and

   f. The mass of VOC per volume (minus water and exempt compounds) and the volume of each coating (minus water and exempt compounds), as applied.

2. Recordkeeping: On and after the initial startup date, the owner or operator of a coating line or operation referenced in 46.19.C and complying by the use of complying coatings shall collect and record all of the following information each day for each coating line or operation and maintain the information at the facility for a period of three years:

   a. The name and identification number of each coating, as applied, on each coating line or operation; and

   b. The mass of VOC per volume of each coating (minus water and exempt compounds) , as applied, used each day on each coating line or operation.

3. Reporting: The owner or operator of a subject coating line or operation referenced in 46.19.C shall notify the Director in the following instances:

   a. Any record showing use of any non-complying coatings shall be reported by

sending a copy of such record to the Director within 30 days following that use; and

b. At least 30 calendar days before changing the method of compliance from the use of complying coatings to daily-weighted averaging or control devices, the owner or operator, shall comply with all requirements of 46.19.D.1 or 46.19.E.1, respectively. Upon changing the method of compliance from the use of complying coatings to daily-weighted averaging or control devices, the owner or operator shall comply with all requirements applicable to the coating line or operation referenced in 46.19.C

D. Requirements for coating sources using daily-weighted averaging:

Any owner or operator of a coating line or operation subject to the limitations of 46.5, 46.11, or 46.15 and complying by means of daily-weighted averaging on that line or operation shall comply with the following:

1. Certification: Upon startup of a new coating line or operation, or upon changing the method of compliance for an existing subject coating line or operation from the use of complying coatings or control devices to daily-weighted averaging, the owner or operator of the subject coating line or operation shall certify to the Director that the coating line or operation is or will be in compliance with 46.19.D on and after the initial startup date. Such certification shall include:

a. The name and location of the facility.

b. The address and telephone number of the person responsible for the facility.

c. Identification of subject sources.

d. The time at which the facility's "day" begins if a time other than midnight local time is used to define "day".

e. The name and identification number of each coating line or operation which will comply by means of daily-weighted averaging;

f. The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating (minus water and/or exempt compounds), as applied, used each day on each coating line or operation;

g. The method by which the owner or operator will create and maintain records each day as required in 46.19.D.2;

h. An example of the format in which the records required in 46.19.D.2 will be kept; and

i. Calculation of the daily-weighted average, using the following procedure for a day representative of current or projected maximum production levels:

Daily-weighted average: The daily-weighted average VOC content, in units

of mass VOC per unit volume of coating (minus water and/or exempt compounds), as applied, of the coatings used in a day on a coating line or operation shall be calculated using the following equation:

$$VOC_w = \frac{\sum_{i=1}^{N} V_i C_i}{V_T}$$

where:

VOC_w = The daily-weighted VOC content of the coatings, as applied, used on a coating line or operation in units of kilograms of VOC per liter of coating (kg VOC/L) (pounds of VOC per gallon of coating [lb VOC/gal]) , minus water and exempt compounds;

n = The number of different coatings, as applied, each day on a coating line or operation;

V_i = The volume of each coating, as applied, each day on a coating line or operation in units of L (gal), minus water and exempt compounds;

C_i = The VOC content of each coating, as applied, each day on a coating line or operation in units of kg VOC/L of coating (lb VOC/gal), minus water and exempt compounds; and

V_T = The total volume of all coating, as applied, each day on a coating line or operation in units of L (gal), minus water and exempt compounds.

2. Recordkeeping: On and after the initial startup date, the owner or operator of a coating line or operation referenced in 46.19.D and complying by means of daily-weighted averaging shall collect and record all of the following information each day for each coating line or operation and maintain the information at the facility for a period of three years.

   a. The name and identification number of each coating, as applied, on each coating line or operation.

   b. The mass of VOC per volume (minus water and exempt compounds) and the volume of each coating (minus water and exempt compounds), as applied, used each day on each coating line or operation.

   c. The daily-weighted average VOC content of all coatings, as applied, on each coating line or operation calculated according to the procedure in 46.19.D.1.e.

3. Reporting: The owner or operator of a subject coating line or operation referenced in 46.19.D shall notify the Director in the following instances:

   a. Any record showing noncompliance with the applicable daily-weighted average requirements shall be reported by sending a copy of the record to the Director within 30 days following the occurrence;

   b. At least 30 calendar days before changing the method of compliance from daily-weighted averaging to the use of complying coatings or control devices, the owner or operator shall comply with all requirements of 46.19.C.1 or 46.19.E.1 respectively. Upon changing the method of compliance from daily-weighted averaging to the use of complying coatings or control devices, the owner or operator shall comply with all requirements applicable to the coating line or operation referenced in 46.19.D.

E. Requirements for coating sources using control devices:

Any owner or operator of a coating line or operation subject to the limitations of 46.5, 46.11 or 46.15 and complying by means of control devices shall comply with the following:

1. Testing of control equipment: Upon startup of a new coating line or operation, or upon changing the method of compliance for an existing coating line or operation from the use of complying coatings or daily-weighted averaging to control devices, the owner or operator of the subject coating line or operation shall perform a compliance test. Testing shall be performed pursuant to the procedures in Sections 27.0 and 46.17. The owner or operator of the subject coating line or operation shall submit to the Director the results of all tests and calculations necessary to demonstrate that the subject coating line or operation is or will be in compliance on and after the initial startup date.

2. Recordkeeping: on and after the initial startup date, the owner or operator of a coating line or operation referenced in 46.19.E shall collect and record all of the following information each day for each coating line or operation and maintain the information at the facility for a period of three years:

   a. The name and identification number of each coating used on each coating line or operation;

   b. The mass of VOC per unit volume of coating solids, as applied, the volume solids content, as applied, and the volume, as applied, of each coating used each day on each coating line or operation;

   c. The maximum VOC content (mass of VOC per unit volume of coating solids, as applied) or the daily-weighted average VOC content (mass of VOC per unit volume of coating solids, as applied) of the coatings used each day on each coating line or operation;

   d. The required overall emission reduction efficiency for each day for each coating line or operation;

e. The actual overall emission reduction efficiency achieved for each day for each coating line or operation as determined by the following procedure:

Overall emission reduction efficiency for control systems: The overall emission reduction efficiency needed to demonstrate compliance is determined each day as follows:

(1) Obtain the emission limitation from the appropriate section of 46.0; and

(2) Calculate the emission limitation on a solids basis according to the following equation:

$$S = \frac{C}{1 - (C/d)}$$

where:

S = VOC emission limitation in terms of kg VOC/L of coating solids (lb VOC/gal);

C = The VOC emission limitation in terms of kg VOC/L of coating (lb/gal), minus water and exempt compounds; and

d = The density of VOC for converting emission limitation to a solids basis; either the actual density or the default density of 7.36 lb/gal.

(3) Calculate the required overall emission reduction efficiency of the control system for the day according to the following equation:

$$E = \frac{(VOC_a - S)}{VOC_a} \times 100$$

where:

E = The required overall emission reduction efficiency of the control system for the day;

VOC_a = (a) The maximum VOC content of the coatings, as applied, used each day on the subject coating line or operation, in units of kg VOC/L of coating solids (lb VOC/gal) , as determined by the applicable test methods and procedures; or

(b) The daily-weighted average VOC content, as applied, of the coatings used each day on the subject coating line or operation, in units of kg VOC/L of coating solids (lb VOC/gal), as determined by the applicable test methods and procedures and the procedure in 46.19.E.2.e(4).

S = VOC emission limitation in terms of kg VOC/L of coating solids (lb VOC/gal).

(4) The daily-weighted average VOC content, as applied, of the coatings used on a coating line or operation in units of mass of VOC per unit volume of coating solids shall be calculated by the following equation:

$$VOC_{ws} = \frac{\sum_{i=1}^{n} V_i D_i Wvoc_i}{\sum_{i=1}^{n} V_i VS_i}$$

where:

VOC_{ws} = The daily-weighted average VOC content, as applied, of the coatings used on a coating line or operation in units of mass of VOC per unit volume of coating solids;

n = The number of different coatings, as applied, used in a day on a coating line or operation;

V_i = The volume of each coating i, as applied, used in a day on a coating line or operation in units of liters (L) (gallons [gal]);

VS_i = The volume fraction solids content of each coating i, as applied, used on a day on a coating line or operation in units of L solids/L coating (gal/gal);

D_i = The density of each coating i, as applied, in units of kg coating/L coating (lb/gal).

$Wvoc_i$ = The weight fraction of VOC in each coating (i), as applied, used in a day on a coating line or operation in units of kg VOC/kg coating (lb VOC/lb coating).

f. Control device monitoring data;

g. A log of operating time for the capture system, control device, monitoring equipment, and the associated coating line or operation;

h. A maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages;

i. For thermal incinerators, all three-hour periods of operation in which the average combustion temperature was more than 28°C (50°F) below the average temperature during the most recent performance test that demonstrated that the facility was in compliance;

j. For catalytic incinerators, all three-hour periods of operation in which the average temperature of the process vent stream immediately before the catalyst bed is more than 28°C (50°F) below the average temperature of the process vent stream during the most recent performance test;

k. For carbon adsorbers, all three-hour periods of operation during which the average VOC concentration or reading of organics in the exhaust gases is more than 20 percent greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the recovery efficiency of the carbon adsorber that demonstrated that the facility was in compliance.

3. Reporting: The owner or operator of a subject coating line or operation referenced in 46.19.E shall notify the Director in the following instances:

a. Any record showing noncompliance with the applicable requirements for control devices shall be reported by sending a copy of the record to the Director within 30 days following the occurrence;

b. At lease 30 calendar days before changing the method of compliance from control devices to the use of complying coatings or daily-weighted averaging, the owner or operator shall comply with all requirements of 46.19.C.1 or 46.19.D.1 respectively. Upon changing the method of compliance from control devices to the use of complying coatings or daily-weighted averaging, the owner or operator shall comply with all requirements applicable to the coating line or operation referenced in 46.19.E.

46.20 Compliance Certification, Recordkeeping, and Reporting Requirements for Non-Coating Sources

A. Initial compliance certification:

The owner or operator of any facility containing sources subject to this section must submit to the Director an initial compliance certification. The owner or operator of any new facility containing sources that become subject to this section must submit an initial compliance certification immediately upon startup of the facility.

1. The initial compliance certification shall provide as a minimum the following information:

    a. Name and location of the facility;

    b. Subject sources; and

    c. Address and telephone number of the person responsible for the facility.

2. For each subject source, the initial compliance certification shall also provide as a minimum:

    a. The applicable emission limitation, equipment specification, or work practice;

    b. The method of compliance;

    c. For each source subject to numerical emission limitations, the estimated emissions without control;

    d. The control system(s) in use;

    e. The design performance efficiency of the control system;

    f. For each source subject to numerical emission limitations, the estimated emissions after control; and

    g. Certification that all subject sources at the facility are in compliance with the applicable emission limitation, equipment specification, or work practice.

    h. The time at which the facility's "day" begins if a time other than midnight local time is used to define a "day".

B: Reports of excess emissions:

The owner or operator of any facility containing sources subject to this section must, for each occurrence of excess emissions, within one business day of becoming aware of such occurrence, supply the Director with the following information:

1. The name and location of the facility;

2. The subject sources that caused the excess emissions;

3. The time and date of first observation of the excess emissions;

4. The cause and expected duration of the excess emissions;

5. For sources subject to numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and

6. The proposed corrective actions and schedule to correct the conditions causing the excess emissions.

C. Requirements for sources using control devices:

1. Initial compliance certification of control equipment, testing of control equipment:

Upon startup of a new source, or upon changing the method of compliance for an existing source, the owner or operator of the subject source shall perform all tests and submit to the Director the results of all tests and calculations necessary to demonstrate that the subject source will be in compliance on and after the initial startup date.

2. Recordkeeping:

a. Each owner or operator of a source shall maintain up-to-date, readily accessible continuous records of any equipment operating parameters specified to be monitored in the applicable section of 46.0 as well as up-to-date, readily accessible records of periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. Those records shall be maintained for at least three years. The Director may at any time require a report of these data. Periods of operation during which the parameter boundaries established during the most recent performance tests are exceeded are defined as follows:

(1) For thermal incinerators, all three-hour periods of operation in which the average combustion temperature was more than 28°C (50°F) below the average temperature of the process vent stream during the most recent performance test;

(2) For catalytic incinerators, all three-hour periods of operation in which the average temperature of the process vent stream immediately before the catalyst bed is more than 28°C (50°F) below the average temperature of the process vent stream during the most recent performance test;

(3) For carbon adsorbers, all three-hour periods of operation during which the average VOC concentration or reading of organics in the exhaust gases is more than 20 percent greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the recovery efficiency of the carbon adsorber that demonstrated that the facility was in compliance.

b. A log of operating time for the capture system, control device, monitoring equipment, and the associated source; and

c. A maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

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Any existing regulatory controls on VOC sources, required by any section of the Knox County Air Pollution Control Regulations, must be retained unless otherwise approved by EPA.

THIS IS THE FEDERALLY APPROVED REGULATION AS OF NOVEMBER 03, 1999

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2nd Revision	JUN 15, 1992	APR 28, 1993	58FR25777
3rd Revision	JUN 18, 1997	JUN 08, 1998	63FR31121
4th Revision	NOV 13, 1998	NOV 03, 1999	64FR59628