

# RULES AND REGULATIONS

## Title 25—ENVIRONMENTAL PROTECTION

### ENVIRONMENTAL QUALITY BOARD

[25 PA. CODE CHS. 121 AND 129]

#### Equivalency Determinations and Aerospace Manufacturing and Rework—VOC Emission Limitations

The Environmental Quality Board (Board) by this order amends Chapters 121 and 129 (relating to definitions; and standards for sources to read) to read as set forth in Annex A.

The changes to Chapter 121 add definitions of terms used in the substantive sections of Chapter 129. Section 129.51 (relating to general) is being modified to remove the requirement that equivalency determinations be submitted to the United States Environmental Protection Agency (EPA) as a State implementation Plan (SIP) amendment. In addition, § 129.73 (relating to aerospace manufacturing and rework) establishes requirements to control volatile organic compound (VOC) emissions from aerospace manufacturing and rework facilities. This order was adopted by the Board at its meeting of October 20, 1998.

#### A. Effective Date

These amendments are effective immediately upon publication in the *Pennsylvania Bulletin* as final rulemaking.

#### B. Contact Persons

For further information, contact Terry Black, Chief, Regulation and Policy Development Section, Division of Air Resource Management, Bureau of Air Quality, 12th Floor, Rachel Carson State Office Building, P. O. Box 8468, Harrisburg, PA 17105-8468, (717) 787-4310 or M. Dukes Pepper, Jr., Assistant Director, Bureau of Regulatory Counsel, Office of Chief Counsel, 9th Floor, Rachel Carson State Office Building, P. O. Box 8464, Harrisburg, PA 17105-8464, (717) 787-7060.

Persons with a disability may use the AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This final rulemaking is also available through the Department of Environmental Protection (Department) website (<http://www.dep.state.pa.us>).

#### C. Statutory Authority

This action is being taken under the authority of section 5(a)(1) and (13) of the Air Pollution Control Act (act) (35 P. S. §§ 4005(a)(1) and (13)), which grants to the Board the authority to adopt regulations for the prevention, control, reduction and abatement of air pollution.

#### D. Background and Summary

Section 5(a)(13) of the act specifically authorizes the Board to adopt regulations establishing alternative VOC emission limitations for aerospace coatings and solvents, including extreme performance coatings. These coatings and solvents are required to be used by the United States Department of Defense, the United States Department of Transportation (DOT) and the National Aeronautics and Space Administration or to meet military and aerospace specifications provided that the alternative limitations are authorized by the Clean Air Act.

The aerospace industry includes manufacturing facilities that produce an aerospace vehicle or its components and all facilities that rework or repair these aerospace products. An aerospace vehicle or its components are generally considered to be any fabricated or processed parts, or completed unit of any aircraft including, but not limited to, airplanes, helicopters, missiles, rockets and space vehicles. In addition to manufacturing and rework facilities, some shops may specialize in providing a service, such as chemical milling, rather than actually producing a component or assembly. In addition to these facilities, there are numerous subcontractors that manufacture or rework aerospace vehicles or components.

Aerospace manufacturing facilities range in size from small shops that produce a single aerospace component, such as propellers, to large corporations that produce the entire aircraft. Aerospace rework facilities, however, are usually large facilities that must be able to rework or repair every facet of several modes of large commercial or military aircraft.

The EPA has worked with the aerospace industry to develop control techniques and guidelines related to VOC emissions from aerospace manufacturing and rework operations as well as Maximum Achievable Control Technologies (MACT) to control hazardous air pollutants. These final-form regulations incorporate the substantive provisions of the final guidelines and MACT into the Department's air quality regulations.

The Department worked with the Air Quality Technical Advisory Committee (AQTAC) in the development of these final-form regulations. At its July 23, 1998, meeting, AQTAC recommended adoption of the final-form regulations.

Following final adoption, this regulatory revision will be submitted to the EPA as an amendment to the SIP.

#### E. Summary of Comments and Responses on the Proposed Rulemaking

The Board received three sets of comments on the regulatory proposal. The following summarizes the major issues and the Board's responses:

Avogadro Environmental Corporation commented that the proposed changes to the definition of "miscellaneous metal parts" and to the language of § 129.73(a) result in no applicable VOC limits for aerospace facilities which are not major sources of VOC. The commentator suggested that the regulation require all facilities with emissions in excess of 15 pounds per day or 2.7 pounds per year to comply with the limits in Table II of § 129.73.

The final-form regulations are based on the EPA Control Technique Guideline (CTG) and on the MACT requirements for the aerospace industry. The EPA analysis completed as part of the CTG development determined emission thresholds that are appropriate. The final-form regulations are applicable to these sources. If a facility involved in the manufacture or rework of aerospace vehicles or components has potential VOC emissions of 25 tons per year or more, it is subject to § 129.73. Moreover, if a facility coats or cleans a variety of products in addition to aerospace products, the operations could be subject to other requirements, including the surface coating limitations in § 129.52 (relating to surface coating processes). Facilities which are solely involved in aerospace surface coating operations with the potential to

emit less than the applicability thresholds would not be subject to the aerospace coating limitations.

The EPA expressed concerns about the proposal to eliminate SIP approval for equivalency determinations under § 129.51. A fundamental requirement in § 129.51 is that the emissions which result following the implementation of an alternative emission reduction program must be equal to or less than the emissions that would result if the source complied with the applicable emission limitation. Therefore, an alternative emission limitation adopted under § 129.51 must provide for emissions equal to or less than the level contemplated in the emission limitation.

The EPA authorized emissions trading under a Federally enforceable emissions cap as part of Pennsylvania's Title V and Federally enforceable State operating permit program. The revision to § 129.51 extends this authorization to sources of VOC emissions. The EPA will still receive notice of these permit actions. For actions at Title V facilities, the EPA has authority to prevent issuance of the permit under § 127.522 (relating to operating permit application review by the EPA and affected states). For facilities not meeting the Title V thresholds, the EPA has an opportunity to provide comments on the permit under §§ 127.44 and 127.424 (relating to public notice). The Department believes that the permitting process provides the appropriate procedure for EPA input or equivalency determinations.

The EPA suggested changes to the provisions in § 129.51(a)(4) related to capture efficiency testing. The Independent Regulatory Review Commission (IRRC) recommended that revisions be done as a separate rulemaking. Since the Department did not propose changes to this section, the existing language has been retained.

The EPA and IRRC commented that a number of definitions and technical provisions of the CTG are not consistent with the proposed amendments. The final-form regulations have been modified to address these comments. Additional grammatical and numbering changes have also been made. The modifications appear in § 121.1 (relating to definitions) and affect the following terms: "aircraft transparency," "aqueous cleaning solvent," "chemical milling maskant," "operating parameter valve," "silicone insulation material," "Type I chemical milling maskant," "Type II chemical milling maskant," "waterborne (water-reducible) coating." In addition, modifications were made to §§ 129.51(a)(1), 129.73(1)(v)—(vii), (vii), (2)—(7) and (9).

Finally, the EPA suggested that although the Pennsylvania definition of "VOC" was not proposed for change, the definition should be revised to make it consistent with the definition in the aerospace CTG and in the MACT standard. The Board did not propose revisions to the definition of "VOC." Therefore, the SIP-approved definition is not changed in the final rulemaking.

#### F. Summary of Regulatory Requirements

##### Chapter 121. General Provisions.

The changes to Chapter 121 add definitions of terms used in the substantive provisions of Chapter 129 applicable to standards for VOC sources. The definitions include: "ablative coating," "adhesion promoter," "adhesion bonding primer," "adhesive primer," "aerosol coating," "aerospace coating operation," "aerospace coating unit," "aerospace primer," "aerospace surface preparation,"

"aerospace topcoat," "aerospace vehicle or component," "aircraft fluid systems," "aircraft transparency," "antichafe coating," "antique aerospace vehicle or component," "aqueous cleaning solvent," "bonding maskant," "CARC—chemical agent-resistant coating," "chemical milling maskant," "cleaning operation," "cleaning solvent," "closed-cycle depainting system," "commercial exterior aerodynamic structure primer," "commercial interior adhesive," "compatible epoxy primer," "compatible substrate primer," "confined space," "corrosion prevention system," "critical use and line sealer maskant," "cryogenic flexible primer," "cryoprotective coating," "cyanoacrylate adhesive," "electric or radiation-effect coating," "electrostatic discharge and electromagnetic interference (EMI) coating," "elevated temperature skydrol resistant commercial primer," "epoxy polyamide topcoat," "exempt solvent," "fire-resistant (interior) coating," "flexible primer," "flight test coating," "flush cleaning," "fuel tank adhesive," "fuel tank coating," "hand-wipe cleaning operation," "high temperature coating," "insulation covering," "intermediate release coating," "lacquer," "limited access space," "metalized epoxy coating," "mold release," "nonstructural adhesive," "operating parameter value," "optical antireflection coating," "part marking coating," "pretreatment coating," "radome," "rain erosion-resistant coating," "rocket motor bonding adhesive," "rocket motor nozzle coating," "rubber-based adhesive," "scale inhibitor," "screen print ink," "sealant," "seal coat maskant," "self-priming topcoat," "semiaqueous cleaning solvent," "silicone insulation material," "solids," "solid film lubricant," "space vehicle," "specialty coating," "specialized function coating," "spray gun," "structural autoclavable adhesive," "structural nonautoclavable adhesive," "temporary protective coating," "thermal control coating," "touch-up and repair operation," "Type I chemical etchant," "Type I chemical milling maskant," "Type II chemical etchant," "Type II chemical milling maskant," "VOC composite vapor pressure," "waterborne (water-reducible) coating," "wet fastener installation coating" and "wing coating."

In the final rulemaking, the definition of "aqueous cleaning solvent" is changed to make it consistent with the aerospace MACT definition. Moreover, the definition of "silicon insulation material" is modified by the addition of language to clarify the difference between ablative and silicone insulation materials. Finally, the definitions "Type I chemical etchant" and "Type II chemical etchant" have been added to make them consistent with the definition in the aerospace MACT.

There are also minor revisions to the definitions of "aircraft transparency," "chemical milling maskant," "operator parameter valve" and "miscellaneous metal parts and products."

##### Chapter 129. Standards for Sources

Section 129.51(a)(1), authorizes compliance with Chapter 129 by an alternative method if that method is approved by the Department in an applicable operating permit plan approval, or both. The changes to § 129.51(a)(6) remove the requirement that alternative compliance methods for meeting the VOC requirements contained in §§ 129.52 and 129.54—129.72 be submitted to the EPA as a SIP amendment. The amendment requires the alternative compliance method to be incorporated into a plan approval and operating permit that is subject to EPA review. This will streamline the process for establishing alternative compliance methods.

Section 129.73 (relating to aerospace manufacturing and rework), establishes specific allowable VOC content requirements for aerospace coatings. The regulations are modified to make the applicability thresholds consistent with the CTG developed by the EPA. The regulation is applicable to all sources with the potential to emit 25 tons of VOC per year. The methodology for calculating the VOC content of coatings is provided in § 129.73(4). Paragraph (5) establishes application techniques for applying aerospace coatings, and paragraph (6) establishes exceptions to those coating technique requirements. Paragraph (7) establishes limitations for hand-wipe cleaning of aerospace vehicles or components and paragraph (8) establishes exceptions to the hand-wipe requirements. Paragraphs (9)—(11) establish requirements for cleaning solvent containers, spray gun cleaning and housekeeping. Paragraph (12) authorizes compliance through the use of approved air pollution control equipment. Finally, paragraph (13) establishes the recordkeeping requirements for aerospace manufacturing and rework facilities.

Section 129.73(1) has been revised to move the exemption for touch-up, aerosol and DOT classified coatings, coatings of space vehicles and small volume coatings to paragraph (2) to specify their exemption only from the coating VOC content limits and not the other provisions of the aerospace regulations.

Section 129.73(2) revises the regulation to specify that the exemption for touch-up, aerosol and DOT classified coatings, coatings of space vehicles and small volume coatings is only from the coating VOC content limits and not the other provisions of the aerospace regulations.

Section 129.73(3) has been revised to specify that those specific coatings listed in Table II must meet the allowable VOC limits. All other coatings are subject to the general coating VOC limits. These revisions clarify that the limits in Table II apply to each coating individually.

Section 129.73(5) deletes the proposed provision that related to use of alternative application techniques. Under paragraph (6)(i), the phrase "any situation that normally requires" has been inserted to clarify that the exemption for the use of an air brush applies only to those situations defined in the CTG. Paragraph (7)(iii) has been modified to allow the use of hydrocarbon based solvents if the solvent is composed of a mixture of photochemically reactive hydrocarbons and hydrogenated hydrocarbons and has a maximum vapor pressure of 7 millimeters hg at 200 centigrade (7.75 inches water at 650°F) and contains no hazardous air pollutants or ozone depleting compounds. Paragraph (10)(i) inserts the requirement that each inspection be recorded and that the records of the inspections be maintained for at least 2 years. Paragraph (12)(ii) inserts the phrase "good air pollution control practices that minimize VOC emissions." Finally, a number of grammatical and other minor changes have been made to improve the clarity of the regulation.

#### G. *Benefits and Costs*

Executive Order 1996-1 requires a cost/benefit analysis of the final-form regulations.

##### *Benefits*

Overall, the citizens of this Commonwealth benefit from these changes because they streamline the procedures for implementing the Department's air quality program for establishing equivalencies and implement specific requirements for aerospace manufacturing and rework operations. The aerospace manufacturing and rework industry

benefits from the revisions that make the rule consistent with the Federal CTG and MACT standards.

##### *Compliance Costs*

These final-form regulations may slightly reduce compliance costs by streamlining the equivalency process. Aerospace requirements should have no effect on the compliance costs.

##### *Compliance Assistance Program*

The Department plans to educate and assist the public and regulated community with understanding the newly revised requirements. This will be accomplished through the Department's ongoing regional compliance assistance program.

##### *Paperwork Requirements*

The regulatory provisions will reduce paperwork related to complaints and owner investigations.

#### H. *Sunset Review*

These final-form regulations will be reviewed in accordance with the Sunset Review schedule published by the Department to determine whether the regulations effectively fulfill the goals for which they were intended.

#### I. *Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on August 12, 1997, the Board submitted a copy of the proposed rulemaking to IRRC and the Chairpersons of the Senate and House Environmental Resources and Energy Committees. In compliance with section 5(c) of the Regulatory Review Act, the Board also provided IRRC and the Committees with copies of the comments as well as other documents.

In preparing these final-form regulations, the Board considered the comments received from IRRC and the public. These comments are addressed in the Comment and Response Document and Section E of this Preamble. The Committees did not provide comments on the proposed rulemaking.

These final-form regulations were deemed approved by the Senate and House Environmental Resources and Energy Committees on March 1, 1999. IRRC met on March 11, 1999, and approved the final-form regulations in accordance with section 5.1(e) of the Regulatory Review Act (71 P. S. § 745.51(e)).

#### J. *Findings*

The Board finds that:

(1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P. L. 769, No. 240) (45 P. S. §§ 1201 and 1202) and the regulations promulgated thereunder in 1 Pa. Code §§ 7.1 and 7.2.

(2) The public comment period was provided as required by law and all comments were considered.

(3) These final-form regulations do not enlarge the purpose of the proposal published at 27 Pa.B. 4325 (August 23, 1997).

(4) These final-form regulations are necessary and appropriate for the administration and enforcement of the authorizing acts identified in Section C of this Preamble and are reasonably necessary to achieve and maintain the National Ambient Air Quality Standard for ozone.

#### K. *Order*

The Board acting under the authorizing statute, orders that:

(a) The regulations of the Department, 25 Pa. Code Chapters 121 and 129, are amended by amending §§ 121.1 and 129.51 and by adding § 129.73 to read as set forth in Annex A, with ellipses referring to the existing text of the regulations.

(b) The Chairperson of the Board shall submit this order and Annex A to the Office of General Counsel and to the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairperson shall submit this order and Annex A to IRRC and the Senate and House Environmental Resources and Energy Committees as required by the Regulatory Review Act.

(d) The Chairperson of the Board shall certify this order and Annex A and deposit them with Legislative Reference Bureau as required by law.

JAMES M. SEIF,  
Chairperson

*(Editor's Note: For the text of the order of the Independent Regulatory Review Commission relating to this document, see 29 Pa.B. 1682 (March 27, 1999).)*

**Fiscal Note:** Fiscal Note 7-326 remains valid for the final adoption of the subject regulations.

**Annex A**

**TITLE 25. ENVIRONMENTAL PROTECTION**

**PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**Subpart C. PROTECTION OF NATURAL RESOURCES**

**ARTICLE III. AIR RESOURCES**

**CHAPTER 121. GENERAL PROVISIONS**

**§ 121.1. Definitions.**

The definitions in section 3 of the act (35 P. S. § 4003) apply to this article. In addition, the following words and terms, when used in this article, have the following meanings, unless the context clearly indicates otherwise:

\* \* \* \* \*

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

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*Adhesion promoter*—A very thin coating applied to an aerospace vehicle or component substrate to promote wetting and to form a chemical bond with the subsequently applied material.

*Adhesive bonding primer*—A primer applied in a thin film to aerospace components for the purpose of corrosion inhibition and increased adhesive bond strength by attachment. There are two categories of adhesive bonding primers:

- (i) Primers with a design cure at 250° or below.
- (ii) Primers with a design cure above 250°.

*Adhesive primer*—A coating applied to an aerospace vehicle or component that does one of the following:

- (i) Inhibits corrosion and serves as a primer when applied to bare metal or other surfaces prior to adhesive application.

- (ii) Is applied to surfaces that can be expected to contain fuel, with the exception of fuel tanks.

*Aerosol coating*—A coating expelled from a hand-held pressurized, nonrefillable container in a finely divided spray when a valve on the container is depressed.

*Aerospace coating operation*—An operation using a spray booth, tank or other enclosure of an area, such as a hangar for applying a single type of coating—for example, primer). Using the same spray booth for applying another type of coating—for example, a topcoat—constitutes a separate coating operation for which compliance determinations are performed separately.

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

*Aerospace primer*—The first layer and subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, protection from the environment, functional fluid resistance or adhesion of subsequent coatings. The term does not include primers that are defined as specialty coatings.

*Aerospace surface preparation*—The removal of contaminants from the surface of an aerospace vehicle or component or the activation or reactivation of the surface in preparation for the application of a coating.

*Aerospace topcoat*—A coating that is applied over a primer on an aerospace vehicle or component for appearance, identification, camouflage or protection. The term does not include topcoats that are defined as specialty coatings.

*Aerospace vehicle or component*—A fabricated part, processed part, assembly of parts or completed unit, with the exception of electronic components, of any aircraft including, but not limited to, airplanes, helicopters, missiles, rockets and space vehicles.

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*Aircraft fluid systems*—Systems that handle hydraulic fluids, fuel, cooling fluids or oils.

*Aircraft transparency*—An aircraft windshield, canopy, passenger window, lense or another component that is constructed of transparent materials.

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*Antichafe coating*—A coating applied to areas of moving aerospace components that may rub during normal operations or installation.

*Antique aerospace vehicle or component*—An antique aircraft, as defined by 14 CFR Part 45 (relating to identification and registration marking), or components thereof. An antique aerospace vehicle would not routinely be in commercial or military service in the capacity for which it was designed.

\* \* \* \* \*

*Aqueous cleaning solvent*—A solvent in which water is at least 80% by weight of the solvent. Aqueous cleaning

solvents solutions have a flash point greater than 93°C (200°F) (as reported by the manufacturer) and the solution is miscible with water.

\* \* \* \* \*

*Bonding maskant*—A temporary coating used to protect selected areas of aerospace parts from strong acid or alkaline solutions during processing for bonding.

*CARC—chemical agent resistant coating*—An exterior topcoat applied to aerospace vehicles or components designed to withstand exposure to chemical warfare agents or the decontaminants used on these agents.

*Chemical milling maskant*—A coating that is applied directly to aluminum aerospace vehicles or components to protect surface areas when chemically milling the component with a Type II etchant. The term does not include maskants used with Type I etchants, bonding maskants, line sealers and critical use and seal coat maskants. Additionally, maskants that must be used on an individual part or subassembly with a combination of Type II etchants and any of these types of maskants—for example, Type I compatible, bonding, line sealers and critical use and seal coat.

*Cleaning operation*—Spray-gun, hand-wipe and flush cleaning operations.

*Cleaning solvent*—A liquid material used for hand-wipe spray gun or flush cleaning. The term includes solutions that contain VOCs.

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*Closed-cycle depainting system*—A dust free, automated process that removes a permanent coating in small sections at a time, and maintains a continuous vacuum around the area being depainted to capture emissions.

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*Commercial exterior aerodynamic structure primer*—An aerospace vehicle or component primer used on aerodynamic components and structures that protrude from the fuselage, such as wings and attached components, control surfaces, horizontal stabilizers, vertical fins, wing-to-body fairings, antennae and landing gear and doors, for the purpose of extended corrosion protection and enhanced adhesion.

*Commercial interior adhesive*—Materials used in the bonding of passenger cabin interior components which meet the Federal Aeronautics Administration (FAA) fireworthiness requirements.

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*Compatible epoxy primer*—An aerospace vehicle or component primer that is compatible with the filled elastomeric coating and is epoxy based. The compatible substrate primer is an epoxy-polyamide primer used to promote adhesion of elastomeric coatings such as impact-resistant coatings.

*Compatible substrate primer*—Either compatible epoxy primer or adhesive primer applied to aerospace vehicles or components.

\* \* \* \* \*

*Confined space*—A space that is the following:

- (i) Large enough and so configured that an employee can enter and perform assigned work.
- (ii) Has limited or restricted means for entry or exit—for example, fuel tanks, fuel vessels and other spaces that have limited means of entry.

- (iii) Not suitable for continuous employee occupancy.

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*Corrosion prevention system*—A coating system applied to aerospace vehicles or components that provides corrosion protection by displacing water and penetrating mating surfaces, forming a protective barrier between the metal surface and moisture. Coatings containing oils or waxes are excluded from this category.

\* \* \* \* \*

*Critical use and line sealer maskant*—

(i) a temporary coating applied to aerospace vehicles or components, not covered under other maskant categories, used to protect selected areas of aerospace parts from strong acid or alkaline solutions such as those used in anodizing, plating, chemical milling and processing of magnesium, titanium or high strength steel, high precision aluminum chemical milling of deep cuts and aluminum chemical milling of complex shapes.

(ii) The term includes materials used for repairs or to bridge gaps left by scribing operations—that is, a line sealer.

*Cryogenic flexible primer*—A primer applied to aerospace vehicles or components designed to provide corrosion resistance, flexibility and adhesion of subsequent coating systems when exposed to loads up to and surpassing the yield point of the substrate at cryogenic temperatures (−275°F and below).

*Cryoprotective coating*—A coating applied to aerospace vehicles or components that:

- (i) Insulates cryogenic or subcooled surfaces to limit propellant boil-off.
- (ii) Maintains structural integrity of metallic structures during ascent or reentry.
- (iii) Prevents ice formation.

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*Cyanoacrylate adhesive*—A fast-setting, single component adhesive that cures at room temperature. The term is also known as “super glue.”

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*Electric or radiation-effect coating*—

(i) A coating or coating system applied to aerospace vehicles or components engineered to interact, through absorption or reflection, with specific regions of the electromagnetic energy spectrum, such as the ultraviolet, visible, infrared or microwave regions.

(ii) Uses include, but are not limited to:

- (A) Lightning strike protection.
- (B) Electromagnetic pulse (EMP) protection.
- (C) Radar avoidance.

(iii) The term excludes coatings that have been designated “classified” by the Department of Defense.

*Electrostatic discharge and electromagnetic interference (EMI) coating*—A coating applied to space vehicles, missiles, aircraft radomes and helicopter blades to disperse static energy or reduce electromagnetic interference.

*Elevated temperature skydrol resistant commercial primer*—A primer, applied primarily to commercial aircraft (or commercial aircraft adapted for military use), that must withstand immersion in phosphate-ester (PE) hydraulic fluid (skydrol 500B or equivalent) at the elevated temperature of 150°F for 1,000 hours.

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*Epoxy polyamide topcoat*—A coating applied to aerospace vehicles or components when harder films are required or in some areas where engraving is accomplished in camouflage colors.

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*Exempt solvent*—Specified organic compounds that have been designated by the EPA as having negligible photochemical reactivity and are listed in 40 CFR 51.100 (relating to requirements for preparation, adoption and submittal of implementation plans).

\* \* \* \* \*

*Fire-resistant (interior) coating*—

(i) For civilian aircraft, fire-resistant interior coatings are used on passenger cabin interior parts that are subject to the Federal Aviation Administration fireworthiness requirements.

(ii) For military aircraft, fire-resistant interior coatings are used on parts that are subject to the flammability requirements of MIL-STD-1630A and MIL-A-87721.

(iii) For space applications, these coatings are used on parts that are subject to the flammability requirements of SE-R-0006 and SSP 30233.

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

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*Flight test coating*—A coating applied to aircraft other than missiles or single-use aircraft prior to flight testing to protect the aircraft from corrosion and to provide required marking during flight test evaluation.

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*Flush cleaning*—

(i) Removal of contaminants such as dirt, grease, oil and coatings from an aerospace vehicle or component or coating equipment by passing solvent over, into or through the item being cleaned. The solvent simply may be poured into the item being cleaned and then drained or assisted by air or hydraulic pressure or by pumping.

(ii) The term does not include hand-wipe cleaning operations where wiping, scrubbing, mopping or other hand action is used.

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*Fuel tank adhesive*—An adhesive used to bond aerospace vehicle components exposed to fuel and which must be compatible with fuel tank coatings.

*Fuel tank coating*—A coating applied to aerospace vehicle fuel tank components for the purpose of corrosion or bacterial growth inhibition and to assure sealant adhesion in extreme environmental conditions.

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*Hand-wipe cleaning operation*—Removing contaminants such as dirt, grease, oil and coatings from an aerospace vehicle or component by physically rubbing it with a

material such as a rag, paper or cotton swab that has been moistened with a cleaning solvent.

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*High temperature coating*—An aerospace vehicle or component coating designed to withstand temperatures of more than 350°F.

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*Insulation covering*—Material that is applied to foam insulation to protect the insulation from mechanical or environmental damage.

*Intermediate release coating*—A thin coating applied beneath topcoats on aerospace vehicles or components to assist in removing the topcoat in depainting operations and generally to allow the use of less hazardous depainting methods.

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*Lacquer*—A clear or pigmented coating formulated with a nitrocellulose or synthetic resin to dry by evaporation without a chemical reaction. Lacquers are resolvable in their original solvent.

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*Limited access space*—Internal surfaces or passages of an aerospace vehicle or component to which coatings cannot be applied without the aid of an airbrush or a spray gun extension for the application of coatings.

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*Metalized epoxy coating*—A coating applied to aerospace vehicles or components that contains relatively large quantities of metallic pigmentation for appearance or added protection, or both.

*Miscellaneous metal parts and products*—Items made of ferrous or nonferrous metals, including, but not limited to, large farm machinery, small farm machinery, small appliances, commercial and industrial machinery, fabricated metal products and items listed under the *Standard Industrial Classification Code* 3300 through 3900. The term does not include cans, coils, automobiles, light duty trucks, metal furniture, magnet wire, large appliances, aerospace vehicles or components and automobile refinishing and customized top coating of automobiles and trucks, if production since January 1, 1987, has not exceeded 34 vehicles per day.

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*Mold release*—A coating applied to an aerospace vehicle or component mold surface to prevent the molded piece from sticking to the mold as it is removed.

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*Nonstructural adhesive*—An adhesive applied to aerospace vehicles or components that bonds nonload bearing aerospace components in noncritical applications and is not included in any other specialty adhesive categories.

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*Operating parameter value*—A minimum or maximum value established for a control equipment or process parameter that, if achieved by itself or in combination with one or more other operating parameter values, determines whether an owner or operator has complied with an applicable emission limitation.

*Optical antireflection coating*—A coating, applied to aerospace vehicles or components, with a low reflectance in the infrared and visible wavelength ranges that is used for antireflection on or near optical and laser hardware.

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*Part marking coating*—Coating or ink used to make identifying markings on aerospace materials, components and assemblies. These markings may be either permanent or temporary.

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*Pretreatment coating*—An organic coating that contains at least 0.5% acids by weight and is applied directly to metal surfaces of aerospace vehicles and components to provide surface etching, corrosion resistance, adhesion and ease of stripping.

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*Radome*—The nonmetallic protective housing for aerospace electromagnetic transmitters and receivers—for example, radar, electronic countermeasures.

*Rain erosion resistant coating*—A coating or coating system used to protect the leading edges of parts such as flaps, stabilizers, radomes and engine inlet nacelles against erosion caused by rain impact during flight.

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*Rocket motor bonding adhesive*—An adhesive used in rocket motor bonding applications.

*Rocket motor nozzle coating*—A catalyzed epoxy coating system used in elevated temperature applications on rocket motor nozzles.

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*Rubber-based adhesive*—A quick setting contact cement applied to aerospace vehicles and components that provides a strong, yet flexible, bond between two mating surfaces that may be of dissimilar materials.

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*Scale inhibitor*—A coating that is applied to the surface of an aerospace vehicle component prior to thermal processing to inhibit the formation of scale.

\* \* \* \* \*

*Screen print ink*—An ink used in screen printing processes during fabrication of decorative laminates and decals for aerospace vehicles and components.

*Sealant*—

(i) A material used to prevent the intrusion of water, fuel, air or other liquids or solids from certain areas of aerospace vehicles or components.

(ii) There are two categories of sealants:

(A) Extrudable/rollable/brushable sealants.

(B) Sprayable sealants.

*Seal coat maskant*—A coating applied over a maskant on aerospace vehicles and components to improve abrasion and chemical resistance during production operations.

\* \* \* \* \*

*Self-priming topcoat*—A topcoat that is applied directly to an uncoated aerospace vehicle or component for purposes of corrosion prevention, environmental protection and functional fluid resistance. More than one layer of identical coating formulation may be applied to the vehicle or component. The coating is not subsequently topcoated with any other product formulation.

*Semiaqueous cleaning solvent*—A solution in which water is a primary ingredient (>60% by weight of the solvent solution as applied is water).

*Silicone insulation material*—An insulating material applied to exterior metal surfaces of aerospace vehicles for protection from high temperatures caused by atmospheric friction or engine exhaust. These materials differ from ablative coatings in that they are not designed to be purposefully exposed to open flame or extreme heat and charred.

\* \* \* \* \*

*Solids*—The nonvolatile portion of the coating that after drying makes up the dry film.

*Solid film lubricant*—A very thin coating, applied to aerospace vehicles or components, consisting of a binder system which contains as its chief pigment material one or more of the following:

(i) Molybdenum.

(ii) Graphite.

(iii) Polytetrafluoroethylene (PTFE).

(iv) Other solids that act as a dry lubricant between faying surfaces.

\* \* \* \* \*

*Space vehicle*—A manmade device, either manned or unmanned, designed for operation beyond earth's atmosphere.

(i) The term includes integral equipment, such as models, mock-ups, prototypes, molds, jigs, tooling, hardware jackets and test coupons.

(ii) The term also includes auxiliary equipment associated with test, transport and storage, that through contamination can compromise the space vehicle performance.

*Specialty coating*—A coating applied to aerospace vehicles or components that, even though it meets the definition of a primer, topcoat or self-priming topcoat, has additional performance criteria beyond those of primers, topcoats and self-priming topcoats for specific applications. These performance criteria may include, but are not limited to, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealing, adhesively joining substrates or enhanced corrosion protection.

*Specialized function coating*—A coating applied to aerospace vehicles or components that fulfills extremely specific engineering requirements that are limited in application and are characterized by low volume usage. This category excludes coatings included in other specialty coating categories.

*Spray gun*—A device that atomizes a coating or other material and projects the particulates or other material onto a substrate.

\* \* \* \* \*

*Structural autoclavable adhesive*—An adhesive, cured by heat and pressure in an autoclave, that is used to bond load carrying aerospace components.

*Structural nonautoclavable adhesive*—An adhesive that is cured under ambient conditions that is used to bond load carrying aerospace components or other critical functions, such as nonstructural bonding in the proximity of engines.

\* \* \* \* \*

*Temporary protective coating*—A coating applied to provide scratch or corrosion protection during manufacturing, storage or transportation of aerospace vehicles or components.

(i) The term includes peelable protective coatings and alkaline removable coatings. These materials are not intended to protect against strong acid or alkaline solutions.

(ii) The term does not include coatings that provide protection from acid or alkaline chemical processing.

\* \* \* \* \*

*Thermal control coating*—A coating formulated with specific thermal conductive or radiative properties to permit temperature control of the aerospace vehicle or component substrate.

\* \* \* \* \*

*Touch-up and repair operation*—

(i) That portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage.

(ii) The term includes out-of-sequence or out-of-cycle coating.

\* \* \* \* \*

*Type I chemical etchant*—A chemical milling etchant which contains varying amounts of dissolved sulfur but which does not contain amines.

*Type I chemical milling maskant*—A coating that is applied directly to aluminum aerospace vehicles and components to protect surface areas when chemically milling the aerospace vehicle or component with a Type I etchant.

*Type II chemical etchant*—A chemical milling etchant that is a strong sodium hydroxide solution containing amines.

*Type II chemical milling maskant*—A coating that is applied directly to aluminum aerospace vehicles and components to protect surface areas when chemically milling the aerospace vehicle or component with a Type II etchant.

\* \* \* \* \*

*VOC composite vapor pressure*—The sum of the partial pressures of the compounds defined as VOCs and is determined by the following calculation:

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

where:

$W_i$  = Weight of the "i"th VOC compound, grams.

$W_w$  = Weight of water, grams.

$W_e$  = Weight of non-HAP, non-VOC compound, grams.

$MW_i$  = molecular weight of the "i"th VOC compound, G/G-mole.

$MW_w$  = Molecular weight of water, G/G-mole.

$MW_e$  = Molecular weight of exempt compound, G/G-mole.

$PP_c$  = VOC composite partial pressure at 20°C, MM HG.

$VP_i$  = Vapor pressure of the "i"th VOC compound at 20°C, MM HG.

\* \* \* \* \*

*Waterborne (water-reducible) coating*—A coating that contains more than 5% water by weight in its volatile fraction, as applied.

\* \* \* \* \*

*Wet fastener installation coating*—A primer or sealant applied to aerospace vehicles or components by dipping, brushing or daubing on fasteners which are installed before the coating is cured.

\* \* \* \* \*

*Wing coating*—A corrosion-resistant topcoat applied to aerospace vehicles or components that is resilient enough to withstand the flexing of the wings.

\* \* \* \* \*

**CHAPTER 129. STANDARDS FOR SOURCES**

**SOURCES OF VOC**

**§ 129.51. General.**

(a) *Equivalency.* Compliance with §§ 129.52 and 129.54—129.73 may be achieved by alternative methods if the following exist conditions are not:

(1) The alternative method is approved by the Department in an applicable plan approval or operating permit, or both.

(2) The resulting emissions are equal to or less than the emissions that would have been discharged by complying with the applicable emission limitation.

(3) Compliance by a method other than the use of a low VOC coating or ink which meets the applicable emission limitation in §§ 129.52, 129.67 and 129.73 (relating to surface coating processes; graphic arts systems; and aerospace manufacturing and rework) shall be determined on the basis of equal volumes of solids.

(4) Capture efficiency testing and emissions testing are conducted in accordance with methods approved by the EPA.

(5) Adequate records are maintained to ensure enforceability.

(6) The alternative compliance method is incorporated into a plan approval or operating permit, or both, reviewed by the EPA, including the use of an air cleaning device to comply with § 129.52, § 129.67, § 129.68(b)(2) and (c)(2) or § 129.73.

(b) *New source performance standards.* Sources covered by new source performance standards which are more stringent than those contained in this chapter shall comply with those standards in lieu of the standards found in this chapter.

(c) *Demonstration of compliance.* Test methods and procedures used to monitor compliance with the emission requirements of this section are those specified in Chapter 139 (relating to sampling and testing).



(d) *Records.* The owner or operator of a facility or source subject to the VOC emission limitations and control requirements in this chapter shall keep records to demonstrate compliance with the applicable limitation or control requirement.

(1) The records shall provide sufficient data and calculations to clearly demonstrate that the emission limitations or control requirements are met. Data or information required to determine compliance with an applicable limitation shall be recorded and maintained in a time frame consistent with the averaging period of the standard.

(2) The records shall be retained at least 2 years and shall be made available to the Department on request.

(3) An owner or operator claiming that a facility or source is exempt from the VOC control provisions of this chapter shall maintain records that clearly demonstrate to the Department that the facility or source is not subject to the VOC emission limitations or control requirements.

**§ 129.73. Aerospace manufacturing and rework.**

Except as provided in paragraph (1), this section applies to the manufacture or rework of commercial, civil or military aerospace vehicles or components at any facility which has the potential to emit 25 tons per year of VOCs or more.

(1) This section does not apply to cleaning and coating of aerospace components and vehicles as follows:

(i) At any source conducting research and development for the research and development activities.

(ii) For quality control and laboratory testing.

(iii) For production of electronic parts and assemblies (except for cleaning and coating of completed assemblies).

(iv) For rework operations performed on antique aerospace vehicles or components.

(2) Paragraph (3) does not apply to cleaning and coating of aerospace components and vehicles in the following circumstances:

(i) The use of touchup, aerosol and Department of Defense "classified" coatings.

(ii) The coating of space vehicles.

(iii) At facilities that use separate formulations in volumes less than 50 gallons per year to a maximum exemption of 200 gallons per year of all the coatings in aggregate for these formulations.

(3) Beginning April 10, 1999, a person may not apply to aerospace vehicles or components, aerospace specialty coatings, primers, topcoats and chemical milling maskants including VOC-containing materials added to the original coating supplied by the manufacturer, that contain VOCs in excess of the limits specified in Table II.

(i) Aerospace coatings that meet the definitions of the specific coatings in Table II shall meet those allowable coating VOC limits.

(ii) All other aerospace primers, aerospace topcoats and chemical milling maskants are subject to the general coating VOC limits for aerospace primers, aerospace topcoats and aerospace chemical milling maskants.

TABLE II

Allowable Content of VOCs in Aerospace Coatings  
Allowable VOC Content

COATING TYPE	LIMIT	
	POUNDS PER GALLON	GRAMS PER LITER
Weight of VOC Per Volume of Coating (Minus Water and Exempt Solvents)		
Specialty Coatings		
(1) Ablative Coating	5.0	600
(2) Adhesion Promoter	7.4	890
(3) Adhesive Bonding Primers:		
(a) Cured at 250°F or below	7.1	850
(b) Cured above 250°F	8.6	1,030
(4) Adhesives:		
(a) Commercial Interior Adhesive	6.3	760
(b) Cyanoacrylate Adhesive	8.5	1,020
(c) Fuel Tank Adhesive	5.2	620
(d) Nonstructural Adhesive	3.0	360
(e) Rocket Motor Bonding Adhesive	7.4	890
(f) Rubber-Based Adhesive	7.1	850
(g) Structural Autoclavable Adhesive	0.5	60
(h) Structural Nonautoclavable Adhesive	7.1	850
(5) Antichafe Coating	5.5	660
(6) Chemical Agent-Resistant Coating	4.6	550
(7) Clear Coating	6.0	720
(8) Commercial Exterior Aerodynamic Structure Primer	5.4	650
(9) Compatible Substrate Primer	6.5	780
(10) Corrosion Prevention Compound	5.9	710
(11) Cryogenic Flexible Primer	5.4	645
(12) Cryoprotective Coating	5.0	600
(13) Electric or Radiation-Effect Coating	6.7	800
(14) Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	6.7	800
(15) Elevated Temperature Skydrol Resistant Commercial Primer	6.2	740
(16) Epoxy Polyamide Topcoat	5.5	660
(17) Fire-Resistant (Interior) Coating	6.7	800
(18) Flexible Primer	5.4	640
(19) Flight-Test Coatings:		
(a) Missile or Single Use Aircraft	3.5	420
(b) All Other	7.0	840
(20) Fuel-Tank Coating	6.0	720
(a) High-Temperature Coating	7.1	850
(21) Insulation Covering	6.2	740
(22) Intermediate Release Coating	6.2	750
(23) Lacquer	6.9	830
(24) Maskants:		
(a) Bonding Maskant	10.2	1,230
(b) Critical Use and Line Sealer Maskant	8.6	1,020
(c) Seal Coat Maskant	10.2	1,230
(25) Metallized Epoxy Coating	6.2	740
(26) Mold Release	6.5	780
(27) Optical Anti-Reflective Coating	6.2	750
(28) Part Marking Coating	7.1	850
(29) Pretreatment Coating	6.5	780
(30) Rain Erosion-Resistant Coating	7.1	850
(31) Rocket Motor Nozzle Coating	5.5	660
(32) Scale Inhibitor	7.3	880
(33) Screen Print Ink	7.0	840

COATING TYPE	LIMIT	
	POUNDS PER GALLON	GRAMS PER LITER
(34) Sealants:		
(a) Extrudable/Rollable/Brushable Sealant	2.0	240
(b) Sprayable Sealant	5.0	600
(35) Self-Priming Topcoat	3.5	420
(36) Silicone Insulation Material	7.1	850
(37) Solid Film Lubricant	7.3	880
(38) Specialized Function Coating	7.4	890
(39) Temporary Protective Coating	2.7	320
(40) Thermal Control Coating	6.7	800
(41) Wet Fastener Installation Coating	5.6	675
(42) Wing Coating	7.1	850
Aerospace Primers, Aerospace Topcoats and Aerospace Chemical Milling Maskants		
(1) Primers	2.9	350
(2) Topcoats	3.5	420
(3) Chemical Milling Maskants (Type I/II)	1.3	160

(4) The mass of VOC per combined volume of VOC and coating solids, less water and exempt compounds shall be calculated for each coating by the following equation:

$$VOC = \frac{(w_v - W_w - W_{ex})(D_c)}{100\% - (W_w)(D_c/D_w) - (W_{ex})D_c/D_{ex}}$$

Where:

VOC = VOC content in grams per liter (g/l) of each coating less water and exempt solvents,

$W_v$  = Weight of total volatiles, % (100% - Weight % Nonvolatiles),

$W_w$  = Weight of water, %,

$W_{ex}$  = Weight of exempt solvent, %

$D_c$  = Density of coating, g/l at 25°C,

$D_w$  = Density of water,  $0.997 \times 10^3$  g/l at 25°C, and

$D_{ex}$  = Density of exempt solvent, g/l, at 25°C.

To convert from grams per liter (g/l) to pounds per gallon (lb/gal), multiply the result (VOC content) by  $8.345 \times 10^3$  (lb/gal/g/l).

(5) Except as provided in paragraph (6), beginning April 10, 1999, a person shall use one or more of the following application techniques in applying primer or topcoat to aerospace vehicles or components:

- (i) Flow/curtain coat.
- (ii) Dip coat.
- (iii) Roll coating.
- (iv) Brush coating.
- (v) Cotton-tipped swab application.
- (vi) Electrodeposition (DIP) coating.
- (vii) High volume low pressure (HVLP) spraying.
- (viii) Electrostatic spray.

(6) The following situations are exempt from application equipment requirements listed in paragraph (5):

(i) Any situation that normally requires the use of an airbrush or an extension on the spray gun to properly apply coatings to limited access spaces.

(ii) The application of specialty coatings.

(iii) The application of coatings that contain fillers that adversely affect atomization with HVLP spray guns and that the applicant has demonstrated and the Department has determined cannot be applied by any of the application methods specified in paragraph (5).

(iv) The application of coatings that normally have a dried film thickness of less than 0.0013 centimeter (0.0005 in.) when the applicant has demonstrated and the Department has determined cannot be applied by any of the application methods specified in paragraph (5).

(v) The use of airbrush application methods for stenciling, lettering and other identification markings.

(vi) The use of hand-held spray can application methods.

(vii) Touch-up and repair operations.

(7) Except as provided in paragraph (8), beginning April 10, 1999, a person may not use solvents for hand-wipe cleaning of aerospace vehicles or components unless the cleaning solvents do one of the following:

(i) Meet the definition of "aqueous cleaning solvent" in § 121.1 (relating to definitions).

(ii) Have a VOC composite vapor pressure less than or equal to 45 millimeters (MMHG) at 20°C.

(iii) Is composed of a mixture of VOCs and has a maximum vapor pressure of 7 millimeters (MMHG) at 20°C (3.75 inches water at 68°F) and contains no hazardous air pollutants (HAP) or ozone depleting compounds.

(8) The following aerospace vehicle and component solvent cleaning operations are exempt from paragraph (7):

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

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

(iii) Cleaning and surface activation prior to adhesive bonding.

(iv) Cleaning of electronics parts and assemblies containing electronics parts.

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

(vi) Cleaning of fuel cells, fuel tanks and confined spaces.

(vii) Surface cleaning of solar cells, coated optics and thermal control surfaces.

(viii) Cleaning during fabrication, assembly, installation and maintenance of upholstery, curtains, carpet and other textile materials used in or on the interior of the aircraft.

(ix) Cleaning of metallic and nonmetallic materials used in honeycomb cores during the manufacture or maintenance of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components.

(x) Cleaning of aircraft transparencies, polycarbonate or glass substrates.

(xi) Cleaning and solvent usage associated with research and development, quality control or laboratory testing.

(xii) Cleaning operations, using nonflammable liquids, conducted within 5 feet of any alternating current (AC) or direct current (DC) electrical circuit on an assembled aircraft once electrical power is connected, including interior passenger and cargo areas, wheel wells and tail sections.

(xiii) Cleaning operations identified in an essential use waiver under section 604(d)(1) of the Clean Air Act (42 U.S.C.A. § 7671c(d)(1)) or a fire suppression or explosion prevention waiver under section 604(g)(1) of the Clean Air Act which has been reviewed and approved by the EPA and the voting parties of the International Montreal Protocol Committee.

(9) Cleaning solvents, except for semiaqueous cleaning solvents, used in the flush cleaning of aerospace vehicles, components, parts, and assemblies and coating unit components, shall be emptied into an enclosed container or collection system that is kept closed when not in use or captured with wipers which comply with the housekeeping requirements of paragraph (11). Aqueous cleaning solvents are exempt from these requirements.

(10) Spray guns used to apply aerospace coatings shall be cleaned by one of the following:

(i) An enclosed spray gun cleaning system that is kept closed when not in use. Leaks, including visible leakage, misting and clouding, shall be repaired within 14 days from when the leak is first discovered. Each owner or operator using an enclosed spray gun cleaner shall visually inspect the seals and all other potential sources of leaks at least once per month. The results of each inspection shall be recorded, and the record shall indicate the date of the inspection, the person who conducted the inspection and whether components were leaking. Records of the inspections shall be maintained for at least 2 years. Each inspection shall occur while the spray gun cleaner is in operation. If the leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the leak is repaired or its use is permanently discontinued.

(ii) Unatomized discharge of solvent into a waste container that is kept closed when not in use.

(iii) Disassembly of the spray gun and cleaning in a vat that is kept closed when not in use.

(iv) Atomized spray into a waste container that is fitted with a device designed to capture atomized solvent emissions.

(11) The owner or operator of an affected facility shall implement the following housekeeping measures for cleaning solvents:

(i) Fresh and used cleaning solvents, except aqueous and semiaqueous cleaning solvents, used in solvent cleaning operations shall be stored in nonabsorbent, nonleaking containers. The containers shall be kept closed at all times except when filling or emptying.

(ii) Cloth and paper, or other absorbent applicators, moistened with cleaning solvents, except aqueous cleaning solvents, shall be stored in closed, nonabsorbent, nonleaking containers. Cotton-tipped swabs used for very small cleaning operations are exempt.

(iii) Handling and transfer procedures shall minimize spills during filling and transferring the cleaning solvent, except aqueous cleaning solvents, to or from enclosed

systems, vats, waste containers and other cleaning operation equipment that holds or stores fresh or used cleaning solvents.

(12) The owner or operator of an affected facility may comply with this section by using approved air pollution control equipment provided that the following exist:

(i) The control system has combined VOC emissions capture and control equipment efficiency of at least 81% by weight.

(ii) The owner or operator received approval from the Department of a monitoring plan that specifies the applicable operating parameter value, or range of values, to ensure ongoing compliance with this section. The monitoring device shall be installed, calibrated, operated and maintained in accordance with the manufacturer's specifications, good air pollution control practices that minimize VOC emissions, and the Department's approval.

(iii) The owner or operator shall record monitoring parameters as specified in the approved monitoring plan.

(13) The owner or operator of an affected facility shall maintain records in accordance with §§ 129.51 and 129.52 (relating to general; and surface coating processes) including:

(i) A current list of coatings in use categorized in accordance with Table II showing VOC content as applied and usage on an annual basis.

(ii) A current list of cleaning solvents used and annual usage for hand wiping solvents including the water content of aqueous and semiaqueous solvents and the vapor pressure and composite vapor pressure of all vapor pressure compliant solvents and solvent blends.

(iii) A current list and annual usage information for exempt hand-wipe cleaning solvents with a vapor pressure greater than 45 millimeters of mercury (MM HG) used in exempt hand-wipe cleaning operations.

[Pa.B. Doc. No. 99-583. Filed for public inspection April 9, 1999, 9:00 a.m.]

**ENVIRONMENTAL QUALITY BOARD**

**[25 PA. CODE CH. 129]**

**Control of VOCs from Gasoline Dispensing Facilities (Stage II)**

The Environmental Quality Board (Board) by this order amends § 129.82 (relating to control of VOCs from gasoline dispensing facilities (Stage II)) to read as set forth in Annex A. The revisions implement the recommendation of the Southwest Pennsylvania Ozone Stakeholders Working Group (Stakeholders).

The amendment will be submitted to the Environmental Protection Agency (EPA) as an amendment to the State Implementation Plan (SIP).

This notice is given under Board order at its meeting of December 15, 1998.

*A. Effective Date*

This amendment will be effective upon publication in the *Pennsylvania Bulletin* as final rulemaking.

*B. Contact Persons*

For further information, contact Terry Black, Chief, Regulation and Policy Development Section, Division of

Compliance and Enforcement, Bureau of Air Quality, 12th Floor, Rachel Carson State Office Building, P. O. Box 8468, Harrisburg, PA 17105-8468, (717) 787-1663; or M. Duker Pepper, Jr., Assistant Director, Bureau of Regulatory Counsel, Office of Chief Counsel, 9th Floor, Rachel Carson State Office Building, P. O. Box 8464, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This amendment is available electronically through the Department of Environmental Protection (Department) Web site (<http://www.dep.state.pa.us>).

### C. Statutory Authority

This action is being taken under the authority of section 5 of the Air Pollution Control Act (act) (35 P. S. § 4005) which grants to the Board the authority to adopt regulations for the prevention, control, reduction and abatement of air pollution.

### D. Background and Summary

This final-form regulation establishes controls of VOCs from gasoline dispensing facilities (Stage II) in the Pittsburgh Beaver Valley Ozone Nonattainment Area. This final-form regulation is one of four core emission reduction strategies recommended by the Southwest Pennsylvania Ozone Stakeholder Working Group as being necessary for attainment of the ozone standard. The four strategies are:

1. Minor changes to the proposed low enhanced motor vehicle emission inspection and maintenance program.
2. The second phase (55% reduction) of the Ozone Transport Commission NOx Memorandum of Understanding.
3. Clean gasoline proposal (Federal Reformulated Gasoline (RFG) or 7.8 Reid vapor pressure (RVP) gasoline).
4. Stage II vapor control requirements.

The Stakeholders specifically recommended the following schedule and throughput cutoff sizes for the implementation of the Stage II requirements:

1. By the end of the year 1998, Stage II must be put in place by all stations pumping an average of 120,000 gallons of gasoline per month (based on 1995/1996 sales).
2. By the end of the year 2000, Stage II must be put in place by all stations pumping an average of 90,000 gallons of gasoline per month (based upon 1995/1996 sales).
3. As of April 1, 1997, Stage II is required to be installed and operational by all newly constructed gasoline dispensing facilities.
4. As of April 1, 1997, Stage II is required to be installed and operational at the reopening of any gasoline dispensing facility which has been rebuilt or renovated, where tanks and associated piping have been substantially disturbed in the rebuilding or renovation process.
5. Stage II will no longer be required as of the year 2010 provided the Federal program to have vapor collection canisters on board each new vehicle is fully implemented.

This final rulemaking implements the Stakeholders recommendation, with the exception of the compliance date of December 31, 1998, for all existing stations pumping an average of 120,000 gallons per month. This date was changed to July 1, 1999, to afford facilities additional time to comply with this requirement following the Board's adoption of this final-form regulation. The

Stakeholders' recommendation was contingent upon all safety-related questions surrounding Stage II and onboard recovery devices being addressed satisfactorily. The Department's investigation has identified no safety related problems surrounding the use of Stage II with onboard recovery devices. The California Air Resources Board performed tests in June and July 1997, to evaluate potential explosive conditions arising from use of Stage II on vehicles with Onboard Refueling Vapor Recovery (ORVR). The evaluation did not identify significant safety concerns. A preliminary report describing the results of the testing has been drafted and is available from the Department upon request.

The Department discussed the regulatory revisions, Stakeholders' recommendations and implementation schedule with the Air Quality Technical Advisory Committee (AQTAC). At its July 21, 1997, meeting, the AQTAC recommended adoption of the final-form regulation.

In the Preamble to the proposed rulemaking, the Department indicated that the authority and time frames recommended by the Stakeholders could not be adopted as a regulation because of the express language of section 6.7 of the act (35 P. S. § 4006.7). The Department indicated that it intended to seek a repeal of section 6.7 of the act to allow implementation of the Stakeholders' recommendation by regulation. The Department also specifically sought comments on implementation of the Stakeholders' recommendation. Since publication of the proposed rulemaking, section 6.7(a)—(g) of the act has been repealed. The Department now has the legal authority to implement the recommendations of the Stakeholders. This final-form regulation implements those recommendations, except for the compliance date described previously.

The revisions modify and clarify the existing Stage II regulatory requirements. The amendments to § 129.82 incorporate the throughput levels recommended by the Stakeholders. The Department has refined the Stakeholders recommendations to exempt facilities with very small throughputs (less than 10,000 gallons per month) as well as independent small business marketers with throughputs less than 50,000 gallons per month. This refinement makes the program consistent with the Stage II requirements already in place in the Philadelphia area. Subsection (d) provides that if the onboard canister refueling emissions control problem has been fully implemented by 2010, the Stage II systems will no longer be required. Finally, subsection (e) establishes the functional testing and certification requirements consistent with the EPA's regulations.

### E. Summary of Comments and Responses on the Proposed Amendment

The Department received comments from four individuals and organizations. The commentators generally supported the proposed revision.

One commentator indicated that the proposed implementation schedule and the throughput cutoff sizes are not consistent with the Federal Clean Air Act (42 U.S.C.A. §§ 7401—7642) requirements and are in conflict with the act. These inconsistencies have been addressed by a revision of the act.

One commentator indicated that the Department does not have the legal authority to continue its present enforcement policy with respect to Stage II. The Department's exercise of enforcement discretion is appropriate under the provisions of the act. In addition, this final-

form regulation will codify the enforcement policy that is presently being used to implement the Stage II requirements.

One commentator indicated that the Stakeholders did not recommend a de minimis level of 10,000 gallons per month for new or rebuilt facilities, and questioned the Department's inclusion of that limit in the proposed amendment. The 10,000 gallons per month de minimis level is consistent with the threshold level that has been in use in the Philadelphia area since 1992.

One commentator suggested that the requirements should not make both the owner and operator responsible for the installation and operation of the Stage II systems. The requirements should specify that the operator is responsible for assuring employee training, system maintenance and operation and an owner should not be held responsible unless the owner is also the operator. The Department believes that both the owner and operator should be responsible for the compliance status of an affected facility. This has been a component of the SIP-approved program in place in the Philadelphia area since 1992.

One commentator indicated that the final-form regulation should be modified to allow maintenance of records offsite with the provision that the records be made available to the Department within a reasonable time. For ease and effectiveness of enforcement, the Department believes that the appropriate records demonstrating maintenance and other compliance aspects should be maintained on the site.

One commentator indicated that the proposed regulation listed compliance dates which have expired. The final-form regulation implements the compliance dates recommended by the Stakeholders. The expired dates simply make the regulatory language consistent with the act provision applicable in the Philadelphia area since 1992.

One commentator supported the implementation of Stage II throughout this Commonwealth, not only in the moderate, serious and severe ozone nonattainment areas in this Commonwealth. Statewide implementation of Stage II will help to protect the public health of citizens as they refuel their cars. Because significant areas of this Commonwealth demonstrate attainment of the health related ozone air quality standard, the Department does not believe that Statewide implementation of Stage II is appropriate at this time.

One commentator believed that the Commonwealth should have required implementation of Stage II at affected facilities as is required by the existing regulation. Stage II was implemented in the Southeast Pennsylvania ozone nonattainment area in accordance with the existing regulations. Implementation of Stage II in other areas was deferred until it could be determined that the program was necessary for attainment of the ozone air quality standard. The Department will now require implementation of Stage II consistent with the recommendations of the Stakeholders.

One commentator indicated that 5 years was too long a time period between inspections for Stage II systems. The high rate of use of the systems may cause more rapid deterioration because the 5-year interval specified in the regulations relates to the completion of backpressure and leak and pressure decay tests. These tests, which are part

of the EPA's functional testing requirements, relate primarily to the underground piping system components which are not so prone to damage or deterioration as the nozzles, boots and aboveground piping. The inspections of these visible components are to be more frequent, and defective equipment is to be removed from service.

One commentator indicated that the proposed provisions of § 129.82(d) and (d)(2) which make "owners or operators, or both" responsible for completion of testing of Stage II systems could be confusing. The commentator recommended that the Board explain and clarify who bears the ultimate responsibility for testing of the systems. The final-form regulation was revised to remove these detailed testing requirements. Stage II testing requirements in the regulation are provided for in section 6.7(h) of the act.

One commentator indicated that the requirements in the proposed § 129.82(d)(1) for completion of testing "upon installation" could be confusing. The commentator suggested that the Board clarify whether testing is to be required only on new installations or if the Board also intended the testing requirements to apply to existing facilities. These testing requirements have been removed from the final-form regulation. Stage II testing requirements are provided for in section 6.7 of the act.

One commentator indicated that the requirements in the proposed § 129.82(d)(2) specified that testing is to be conducted in accordance with the certification requirements in the EPA's Stage II enforcement and technical guidance documents. Section 129.82(d)(1)(iv) requires an "air to liquid ratio test." The EPA guidance does not include an "air to liquid ratio test." The commentator suggested that the Board explain how a facility would comply with the testing requirement. These testing requirements have been removed from the final-form regulation. Stage II testing requirements contained in the regulation are provided for in section 6.7(h) of the act.

One commentator indicated that although § 129.82(d)(2) requires at least 48 hours advance notice of Stage II system testing, the proposed amendment did not specify who in the Department is to be notified. The commentator suggested that the Board should clarify in § 129.82(d)(2) exactly who in the Department is to be given the 48-hours advance notice of Stage II testing. These testing and notification requirements have been removed from the final-form regulation. Stage II testing requirements contained in the regulation are provided for in section 6.7(h) of the act.

One commentator indicated that § 129.82(d)(3) required Stage II system retesting upon major system replacement or modification. The commentator indicated that the regulation does not clearly specify what constitutes a major system replacement or modification and what constitutes a minor modification. The commentator requested that the Board explain how a facility can determine what replacements or modifications would subject the facility to requirements for retesting. These testing requirements have been removed from the final-form regulation. Stage II testing requirements contained in the regulation are provided for in section 6.7(h) of the act.

#### F. *Benefits, Costs and Compliance*

Executive Order 1996-1 requires a cost/benefit analysis of the final-form regulation.

### *Benefits*

The approximately 2.8 to 3 million people living in the seven counties affected by this final-form regulation will benefit from the reduced ozone levels which will result from implementation of the proposed revision. When ground-level ozone is present in concentrations in excess of the Federal health-based standard, public health is adversely affected. The EPA has concluded that there is an association between ambient ozone concentrations and increased hospital admissions for respiratory ailments, such as asthma. Further, although children, the elderly and those with respiratory problems are most at risk, even healthy individuals may experience increased respiratory ailments and other symptoms when they are exposed to ambient ozone while engaged in activity that involves physical exertion. Though the symptoms are often temporary, repeated exposure can result in permanent lung damage.

The implementation of additional measures to address the ozone air quality nonattainment in Southwest Pennsylvania is necessary to protect the public health. Stage II gasoline vapor recovery is a part of the ozone reduction strategy developed by the Stakeholders.

### *Compliance Costs*

Information developed by the Stakeholders indicates that the cost of gasoline may increase approximately 2 to 2.6¢ per gallon. Estimated annual gasoline sales in the southwest Pennsylvania area are slightly less than 1 billion gallons. Total cost to affected facilities is estimated to be approximately \$25 million for implementation of the Stage II requirements. It is anticipated that the compliance costs associated with the Stage II requirements will be passed on to the consumer in increased gasoline costs.

### *Compliance Assistance Plan*

The Department plans to educate and assist the public and the regulated community with understanding the newly revised requirements and how to comply with them. This will be accomplished through the Department's ongoing regional compliance assistance program. Two workshops were held for underground storage tank installers concerning the Stage II requirements and letters have been sent to station operators concerning the implementation schedule for Stage II in the Pittsburgh-Beaver Valley area.

### *Paperwork Requirements*

Affected facilities will be required to maintain records of compliance testing and maintenance activities. Facilities claiming to be unaffected because of the low throughput volumes will be required to maintain records to demonstrate that they are unaffected.

### *G. Sunset Review*

This final-form regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

### *H. Regulatory Review*

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on April 21, 1997, the Department submitted a copy of the proposed amendment to the Independent Regulatory Review Commission (IRRC) and to the Chairpersons of the Senate and House Environmental Resources and Energy Committees. In compliance

with section 5(b.1) of the Regulatory Review Act, the Department also provided IRRC and the Committees with copies of the comments, as well as other documentation.

In preparing this final-form regulation, the Department has considered the comments received from IRRC and the public. These comments are addressed in the comment and response document and Section E of this Preamble. The Committees did not provide comments on the proposed rulemaking.

This final-form regulation was deemed approved by the House Environmental Resources and Energy Committee and by the Senate Environmental Resources and Energy Committee on March 1, 1999. IRRC met on March 11, 1999, and approved the final-form regulation in accordance with section 5(c) of the Regulatory Review Act.

### *I. Findings*

The Board finds that:

(1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. §§ 1201 and 1202) and regulations promulgated thereunder in 1 Pa. Code §§ 7.1 and 7.2.

(2) A public comment period and public hearings were provided as required by law, and all comments were considered.

(3) This regulation does not enlarge the purpose of the proposal published at 27 Pa.B. 2239 (May 3, 1997).

(4) This regulation is necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this Order and is reasonably necessary to achieve and maintain the National ambient air quality standards.

### *K. Order*

The Board, acting under the authorizing statutes, orders that:

(a) The regulations of the Department of Environmental Protection, 25 Pa. Code Chapter 129, are amended by amending § 129.82 to read as set forth in Annex A.

(b) The Chairperson of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairperson shall submit this order and Annex A to IRRC and the Senate and House Environmental Resources and Energy Committees as required by the Regulatory Review Act.

(d) The Chairperson of the Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau, as required by law.

(e) This order shall take effect immediately.

JAMES M. SEIF,  
*Chairperson*

*(Editor's Note: For the text of the order of the Independent Regulatory Review Commission relating to this document, see 29 Pa.B. 1682 (March 27, 1999).)*

**Fiscal Note:** Fiscal Note 7-320 remains valid for the final adoption of the subject regulation.

**Annex A**

**TITLE 25. ENVIRONMENTAL PROTECTION**

**PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**Subpart C. PROTECTION OF NATURAL RESOURCES**

**ARTICLE III. AIR RESOURCES**

**CHAPTER 129. STANDARDS FOR SOURCES**

**MOBILE SOURCES**

**§ 129.82. Control of VOCs from gasoline dispensing facilities (Stage II).**

(a) After the date specified in paragraph (1), (2) or (3), an owner or operator of a gasoline dispensing facility subject to this section may not transfer or allow the transfer of gasoline into a motor vehicle fuel tank unless the dispensing facility is equipped with a Department approved and properly operating Stage II vapor recovery or vapor collection system. Unless a higher percent reduction is required by the EPA under section 182 of the Clean Air Act (42 U.S.C.A. § 7511a), approval by the Department of a Stage II vapor collection system will be based on a determination that the system will collect at least 90% by weight, of the gasoline vapors that are displaced or drawn from a vehicle fuel tank during refueling and the captured vapors are returned to a vapor tight holding system or vapor control system.

(1) This paragraph applies to gasoline dispensing facilities located in areas classified as moderate, serious or severe ozone nonattainment areas under section 181 of the Clean Air Act (42 U.S.C.A. § 7511) including the counties of Berks, Bucks, Chester, Delaware, Montgomery, Philadelphia with monthly throughputs greater than 10,000 gallons (37,850 liters). In the case of independent small business marketers of gasoline as defined in section 325 of the Clean Air Act (42 U.S.C.A. § 7625a), this section shall not apply if the monthly throughput is less than 50,000 gallons (189,250 liters).

(i) Facilities for which construction was commenced after November 15, 1990, shall achieve compliance by May 15, 1993.

(ii) Facilities which dispense greater than 100,000 gallons (378,500 liters) of gasoline per month, based on average monthly sales for the 2-year period immediately preceding November 15, 1992, shall achieve compliance by November 15, 1993.

(iii) Other affected facilities shall achieve compliance by November 15, 1994.

(2) Gasoline dispensing facilities with annual throughputs greater than 10,000 gallons (37,850 liters) in the counties of Bucks, Chester, Delaware, Montgomery and Philadelphia shall be subject to this section immediately upon the addition or replacement of one or more underground gasoline storage tanks for which construction was commenced after November 15, 1992.

(3) This paragraph applies to gasoline dispensing facilities located in the counties of Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland with monthly throughputs greater than 10,000 gallons (37,850 liters). In the case of independent small business marketers of gasoline as defined in section 325 of the Clean Air Act (42 U.S.C.A. § 7625a), this section does not apply if the monthly throughput is less than 50,000 gallons (189,250 liters).

(i) Facilities for which construction was commenced after April 1, 1997, shall achieve compliance at the time of opening of the gasoline dispensing facility.

(ii) Facilities which dispense greater than or equal to 120,000 gallons (454,200 liters) of gasoline per month, based on average monthly sales during calendar years 1995 and 1996, shall achieve compliance by July 1, 1999.

(iii) Facilities which dispense greater than 90,000 gallons (340,650 liters) per month but less than 120,000 gallons (454,200 liters) per month based on average monthly sales during calendar years 1995 and 1996 shall achieve compliance by December 31, 2000.

(4) For purposes of this section, the term "construction" includes, but is not limited to, the addition or replacement of one or more underground gasoline storage tanks.

(b) Owners or operators, or both, of gasoline dispensing facilities subject to this section shall:

(1) Install necessary Stage II vapor collection and control systems, provide necessary maintenance and make modifications necessary to comply with the requirements.

(2) Provide adequate training and written instructions to the operator of the affected gasoline dispensing facility to assure proper operation of the system.

(3) Immediately remove from service and tag any defective nozzle or dispensing system until the defective component is replaced or repaired. A component removed from service may not be returned to service until the defect is corrected. If the Department finds that a defective nozzle or dispensing system is not properly tagged during an inspection, the component may not be returned to service until the defect is corrected, and the Department approves its return to service.

(4) Conspicuously postoperating instructions for the system in the gasoline dispensing area which, at a minimum, include:

(i) A clear description of how to correctly dispense gasoline with the vapor recovery nozzles utilized at the site.

(ii) A warning that continued attempts to dispense gasoline after the system indicates that the vehicle fuel tank is full may result in spillage or recirculation of the gasoline into the vapor collection system.

(iii) A telephone number established by the Department for the public to report problems experienced with the system.

(5) Maintain records of system test results, monthly throughput, type and duration of any failures of the system and maintenance and repair records on the premises of the affected gasoline dispensing facility. The records shall be kept for at least 2 years and shall be made available for inspection, upon request, by the Department.

(c) If an area is reclassified from attainment or marginal nonattainment to serious, nonattainment under section 181 of the Clean Air Act, gasoline dispensing facilities located in the reclassified area will be subject to subsection (a)(1). For purposes of establishing an effecting date for the reclassified area, the date of the *Federal Register* final notice of the reclassification shall serve as the date of publication of this subsection as final in the *Pennsylvania Bulletin*.

(d) If an onboard canister refueling emissions control program has been fully implemented by the EPA by December 31, 2010, the operation and maintenance of Department-approved Stage II systems will no longer be required in the counties of Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland.

(e) The owners or operators of gasoline dispensing facilities shall comply with the functional testing and

certification requirements specified in EPA's Stage II Enforcement and Technical Guidance Documents developed under section 182 of the Clean Air Act to meet the Clean Air Act requirements.

[Pa.B. Doc. No. 99-584. Filed for public inspection April 9, 1999, 9:00 a.m.]

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