ENVIRONMENTAL PROTECTION

AIR QUALITY, ENERGY, AND SUSTAINABILITY

DIVISION OF AIR QUALITY

Air Pollution Control

Control and Prohibition of Air Pollution by Volatile Organic Compounds and Oxides of Nitrogen

Proposed Amendments: N.J.A.C. 7:27-16.1, 16.7, 16.16, 16.27, 19.2, 19.5, 19.8, and 7:27A-3.10

Proposed New Rules: N.J.A.C. 7:27-16.14, 16.15, and 16.24

Authorized By: Bob Martin, Commissioner, Department of Environmental Protection.

Authority: N.J.S.A. 13:1B-3(e), 13:1D-9, 13:1D-134 et seq., and 26:2C-1 et seq., in particular 26:2C-9.2.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

DEP Docket Number: 09-16-11.

Proposal Number: PRN 2017-004.

A **public hearing** concerning this notice of proposal and a proposed State Implementation Plan (SIP) revision, represented by this notice, will be held on February 13, 2017, at 9:00 A.M. at:

New Jersey Department of Environmental Protection

Hearing Room, 1st Floor

401 East State Street

Trenton, New Jersey 08625

Directions to the hearing room may be found at the Department of Environmental Protection's (Department's) website address at www.nj.gov/dep/where.htm.

Submit comments by close of business on March 4, 2017, electronically at www.nj.gov/dep/rules/comments. Each comment should be identified by the applicable N.J.A.C. citation, with the commenter's name and affiliation following the comment.

The Department encourages electronic submittal of comments. In the alternative, comments may be submitted on paper to:

Alice A. Previte, Esq.

Attention: DEP Docket No. 09-16-11

Office of Legal Affairs

New Jersey Department of Environmental Protection

401 East State Street, 7th Floor

Mail Code 401-04L

PO Box 402

Trenton, NJ 08625-0402

Written comments may also be submitted at the public hearing. It is requested (but not required) that anyone providing oral testimony at the public hearing provide a copy of any prepared text to the stenographer at the hearing.

The proposed new rules and amendments will become operative 60 days after their adoption (see N.J.S.A. 26:2C-8). The rule proposal may be viewed or downloaded from the Department's website at www.nj.gov/dep/rules.

The agency proposal follows:

Summary

As the Department has provided a 60-day comment period on this notice of proposal, this notice is excepted from the rulemaking calendar requirements pursuant to N.J.A.C. 1:30-3.3(a)5.

The Department is proposing new rules and amendments to address New Jersey's Reasonably Available Control Technology (RACT) obligations for the Federal 2008 Eight-Hour National Ambient Air Quality Standard (NAAQS) for ozone pursuant to Section 184 of the Clean Air Act (CAA), 42 U.S.C. § 7511c. The NAAQS are designed to protect public health and welfare from specific air pollutants, known as criteria pollutants, which include ozone, fine particulate matter ($PM_{2.5}$ – particulate matter that is 2.5 microns or less equivalent aerodynamic diameter), and nitrogen dioxide (NO_2). On March 12, 2008, the United States Environmental Protection Agency (EPA) imposed an eight-hour ozone NAAQS of 75 ppb. (73 FR 16436, March 12, 2008.) Pursuant to Section 110 of the CAA, 42 U.S.C. § 7410, each state has primary responsibility for ensuring attainment and maintenance of each NAAQS.

EPA evaluates each county within a state to determine if the air quality meets the various NAAQS. If a county does not meet a NAAQS, it is designated as "nonattainment." There are degrees of nonattainment, ranging from "extreme," which is the farthest from meeting the NAAQS, to "marginal," which is closest to meeting the NAAQS. An area may be a nonattainment area for one pollutant and an attainment area for others. Each nonattainment area

must have, and implement, a plan to meet the standard, or risk losing some form of Federal financial assistance, such as highway funding. The plan must include a program to require certain stationary sources to implement RACT for that pollutant, discussed further below. (EPA defines RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available, considering technological and economic feasibility (44 FR 53762, September 17, 1979).) The principal mechanism at the state level for complying with this CAA requirement is the State Implementation Plan (SIP). In its SIP, a state identifies the regulatory programs, actions, and commitments that will enable it to comply with the CAA. Upon approval by EPA, an SIP is legally enforceable under both Federal and state law.

On May 21, 2012, EPA formally designated all New Jersey counties as nonattainment and classified them as marginal for the 75 ppb ozone standard. (77 FR 30088 at 30135, May 21, 2012.) All counties in the State meet the NAAQS for $PM_{2.5}$ as of October 1, 2015. The proposed new rules and amendments, once adopted, will become part of New Jersey's SIP. The rules are intended to help New Jersey meet the ozone standard by reducing emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) (both of which are ozone precursors), and are also intended to reduce the indirect formation of $PM_{2.5}$, so that the State can continue to meet the NAAQS for $PM_{2.5}$. The proposed rules address VOC emissions from industrial cleaning solvents; miscellaneous metal and plastic parts coatings; paper, film, and foil coatings; and fiberglass boat manufacturing materials. The proposed rules also address NO_x emissions from natural gas-fired engines and simple cycle turbines used to transfer gaseous fuels.

Additional information on historical and current NAAQS is available at www3.epa.gov/ttn/naaqs/.

Background

Ozone Formation

Ozone occurs naturally in the upper regions of the atmosphere (stratosphere), where it is critical to shielding the earth from the sun's harmful ultraviolet radiation. However, in the lower atmosphere (troposphere), ozone is a harmful air pollutant formed by complex chemical reactions involving VOCs and NO_x in the presence of sunlight.

VOCs are chemicals or mixtures of chemicals that evaporate easily at room temperature. Sources of those VOCs that form ozone include vehicle and industrial exhaust, evaporation of gasoline, and a variety of consumer products. In addition to contributing to the formation of ozone, many VOCs are harmful if directly inhaled.

NO_x consists of a mixture of gases comprised mostly of nitric oxide (NO) and nitrogen dioxide (NO_2). These gases are emitted primarily from combustion processes, including the exhaust of motor vehicles, and the burning of coal, oil, or natural gas for electricity and heat. Although most NO_x is emitted as NO, it is readily converted to NO_2 in the atmosphere. NO_2 is a reddish-brown, highly reactive gas that is formed in the air through the oxidation of NO. In the troposphere, near the Earth's surface, NO_2 provides the primary source of the oxygen atoms required for ozone formation. In addition to contributing to the formation of ozone, NO_x is harmful if directly inhaled.

Ground-level ozone is most likely to be formed in significant amounts during the summer, when the hot, sunny days are ideal for ozone formation. In general, the higher the temperature and the more direct the sunlight, the more ozone is produced. The Department has designated May 1 through September 30 as the "ozone season" for purposes of its air pollution

control program. The proposed new rules and amendments do not establish different requirements during the ozone season, but the emission-reducing effect of these requirements will be most pronounced during that time, as discussed further below.

Reasonably Available Control Technology (RACT)

Because all New Jersey counties exceed the NAAQS for ozone, the Department must implement a program to require certain stationary sources to implement RACT for pollutants that lead to ozone formation. (See CAA Sections 172(c)1 and 182, 42 U.S.C. §§ 7502(c)(1) and 7511a.) Generally speaking, a state that is nonattainment for ozone must impose RACT on all existing "major" sources, which are sources that emit or have a potential to emit at least 100 tons per year (tpy) of VOCs or at least 100 tpy of NO_x. (See CAA Sections 182(f)(1) and 184(b)(2), 42 U.S.C. §§ 7511a(f)(1) and 7511c(b)(2).) However, because all New Jersey counties were classified as "severe" nonattainment for the one-hour ozone standard (revoked in 2005), "major" sources in the State include, for the purpose of complying with VOC and NO_x RACT requirements, those sources that emit or have a potential to emit at least 25 tpy of VOC (for VOC RACT requirements), and those sources that emit or have a potential to emit at least 25 tpy of NO_x (for NO_x RACT requirements). (See CAA Sections 172(e) and 182(d), 42 U.S.C. §§ 7502(e) and 7511a(d).) This anti-backsliding provision of the CAA was promulgated to ensure that the air quality in a nonattainment area does not degrade after revocation of a NAAQS, such as the one-hour ozone standard.

To ensure that VOC emissions are properly addressed, CAA section 183(e) directs EPA to list, for regulation, those categories of products that account for at least 80 percent of the VOC emissions, on a reactivity-adjusted basis, from consumer and commercial products in ozone

nonattainment areas (42 U.S.C. §§ 7511b(e)(3)(A)). EPA issued the list on March 23, 1995, and has revised the list periodically. The current CAA section 183(e) list includes, among other products, fiberglass boat manufacturing materials; miscellaneous metal and plastic part coatings; paper, film, and foil coatings; and industrial cleaning solvents. These four source categories are the subject of the VOC RACT component of this rulemaking.

To assist states and facilities in meeting VOC and NO_x RACT requirements, EPA issues Control Techniques Guidelines (CTGs) and Alternative Control Techniques (ACTs) tailored to a specific type of product or process (referred to as a "source category"), such as surface coating of various materials, petroleum liquid storage in external floating roof tanks, and the manufacture of rubber tires. CTGs include recommendations for emissions limitations based on RACT to address ozone nonattainment. A facility that complies with the CTG-recommended control limits is presumed to meet RACT requirements; accordingly, CTGs are often referred to as "presumptive RACT." ACTs describe available control technologies and their respective cost effectiveness (cost per pound, or ton, of pollutants reduced). The measures in the ACTs are not presumed to be RACT. States with ozone nonattainment areas must evaluate the recommendations provided in the CTG and determine if it is necessary to modify existing rules or promulgate new rules to ensure that sources achieve effective emissions reductions in ozone nonattainment areas. A state need not follow each CTG, but can use the recommendations in each CTG to determine what constitutes RACT for each source category in the state. ACTs also provide the states with useful guidance and background information in developing their NO_x RACT control strategies.

The northeast region of the United States from Maine to Virginia (including New Jersey) falls into what CAA designates the "Ozone Transport Region" (OTR), which is essentially a

single 13-state ozone nonattainment area. The CAA requires states in the OTR to require RACT for all existing VOC source categories covered by a CTG. (See CAA Section 184(b)(1)(B), 42 U.S.C. § 7511c(b)(1)(B).)

In addition to ensuring that New Jersey attains, or complies with, the NAAQS for ozone, the Department must re-evaluate which control measures constitute RACT each time EPA revises the NAAQS for ozone. The Department must also periodically amend its RACT rules to reflect improvements in air pollution control technologies. The Department's most recent amendments to the RACT requirements for VOC, N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution from Volatile Organic Compounds, and NO_x, N.J.A.C. 7:27-19, Control and Prohibition of Air Pollution from Oxides of Nitrogen, were published on April 20, 2009 (41 N.J.R. 1752(a)). The purpose of the 2009 rules was to fulfill New Jersey's commitment to attain the 85 ppb ozone standard, as spelled out in the 2007 Ozone RACT SIP revision, available at www.nj.gov/dep/baqp/sip/8-hrRACT-Final.pdf. EPA approved an SIP revision for these 2009 rules. (See www.gpo.gov/fdsys/pkg/FR-2010-08-03/pdf/2010-18887.pdf)

On June 11, 2015, the Department submitted to the EPA a revision to New Jersey's SIP (2015 RACT SIP revision) that addresses CAA RACT obligations for the 75 ppb ozone standard as they apply to states within the OTR. In the 2015 RACT SIP revision, the Department committed to requiring RACT for all VOC source categories for which there is a CTG, all VOC and NO_x sources for which there is an ACT, and all VOC and NO_x major sources for which there is no CTG or ACT. There are some CTGs for which there are no sources in New Jersey; accordingly, the SIP revision identified those CTGs and advised the EPA that there are no applicable sources. This is known as a "negative declaration," and is required under the CAA. The Department's SIP revision is available at www.nj.gov/dep/baqp/sip/siprevs.htm.

In furtherance of the Department's SIP commitment, the proposed new and amended rules address VOC RACT requirements by incorporating recommendations from four CTGs for source categories represented in New Jersey: Industrial Cleaning Solvents (ICS), issued September, 2006 (EPA 453/R-06-001); Paper, Film, and Foil Coatings (PFFC), issued September, 2007 (EPA 453/R-07-003); Miscellaneous Metal and Plastic Parts Coatings (MMPPC), issued September, 2008 (EPA 453/R-08-003); and Fiberglass Boat Manufacturing Materials (FBMM), issued September, 2008 (EPA-453/R-08-004). The CTGs are available at www.epa.gov/airquality/ozonepollution/SIPToolkit. The VOC emission limitations in the proposed new rules and amendments are equivalent to the limits recommended in the EPA's CTG documents, with certain limited exceptions, as is explained below in the Summary of the rules related to such coatings. The proposed new and amended rules address NO_x RACT requirements by establishing new limits on NO_x emissions from existing simple cycle combustion turbines combusting natural gas and compressing gaseous fuel at major NO_x facilities (compressor turbines) and stationary reciprocating engines combusting natural gas and compressing gaseous fuel at major NO_x facilities (compressor engines). As further discussed below, the proposed requirements are consistent with EPA guidance, the recommendations of regional organizations, and the limits for similar sources as established by other states that provide a benchmark for RACT for compressor turbines and engines.

Proposed New Rules and Amendments

The Department proposes new rules and amendments at N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution from Volatile Organic Compounds, N.J.A.C. 7:27-19, Control and Prohibition of Air Pollution from Oxides of Nitrogen, and the Air Administrative Procedure and

Penalties at N.J.A.C. 7:27A. The summary below is divided by topic, as follows: Paper, Film, and Foil Coatings (PFFC); Fiberglass Boat Manufacturing Materials (FBMM); Miscellaneous Metal and Plastic Parts Coatings (MMPPC); Industrial Cleaning Solvents (ICS); and Natural Gas Compressor Engines and Turbines. Proposed amendments to an individual section of the rules may be discussed in the summary of more than one topic.

VOC RACT

Paper, Film, and Foil Coatings (PFFC)

The PFFC category includes coatings that are applied to paper, film, or foil surfaces in the manufacturing of several major product types for the following industry sectors: pressure sensitive tape and labels; photographic film; industrial and decorative laminates; and abrasive products and flexible packaging. This source category also includes coatings applied during miscellaneous coating operations for several products including corrugated and solid fiber boxes; die-cut paper, paperboard, and cardboard; converted paper and paperboard not elsewhere classified; folding paperboard boxes; manifold business forms and related products; plastic aseptic packaging; and carbon paper and inked ribbons. Coating performed on or in-line with any offset lithographic, screen, letterpress, flexographic, rotogravure, or digital printing press is not part of the PFFC category. These excluded operations are addressed by a number of other CTGs specific to their source category. In addition, size presses and on-machine coaters that function as part of an in-line papermaking system are not part of the PFFC category.

The PFFC process is a web-coating process that applies a continuous layer of coating material across essentially the entire width or any portion of the width of a web substrate to provide a covering, finish, or functional or protective layer to a substrate; saturate a substrate for

lamination; or provide adhesion between two substrates for lamination. After the coating is applied, it may be heat dried or cured in one or more drying ovens, where the coating is dried by evaporating the solvent and/or finishing the curing of a polymeric coating. A detailed explanation of the process is available in the PFFC CTG at pages 5 through 10.

VOC emissions from PFFC operations result primarily from the evaporation of volatile components of the coatings and cleaning materials. Most of the VOC emissions from paper, film, and foil coatings occur during the drying/curing of the coatings. The VOCs that evaporate from the web in the drying ovens are vented through an exhaust stack. The amount of VOCs emitted varies depending on the type of coatings being used. Due to increased regulation at the Federal and state level, the industry has steadily moved toward coating formulations that reduce the amount of air emissions per unit amount of coating solids used. As is explained below, this is the case with these facilities in New Jersey.

Cleaning materials are another source of VOCs emitted by PFFC operations. These materials are typically mixtures of organic solvents and may be a solvent, or a specific mixture of individual solvents. Cleaning materials are used to wash the coating applicators and outsides of the coating machines, and to remove residues of excess coatings between job changes. Cleaning may be done manually using shop towels, for example. (See PFFC CTG, page 10)

The EPA first published a CTG for the Surface Coating of Paper in 1977 (1977 CTG), outlining the recommended control options that were considered RACT at the time of publication. In 1983, EPA promulgated the new source performance standards (NSPS) for Pressure Sensitive Tape and Label Surface Coating Operations (Pressure Sensitive Tape NSPS), establishing emission standards for coatings applied during the manufacture of these products. (40 CFR Part 60 Subpart RR). In 2002, the EPA issued National Emission Standards for

Hazardous Air Pollutants (NESHAP) for Paper and Other Web Coating (Paper NESHAP, at 40 CFR Part 63 Subpart JJJJ), which outlined emissions levels that it considered to constitute Maximum Achievable Control Technologies. NESHAP are stationary source standards for hazardous air pollutants (HAPs), which are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. The PFFC CTG was based on the 1977 CTG, the Pressure Sensitive Tape NSPS, the 2002 Surface Coating NESHAP, and existing state VOC emission reduction approaches, such as those by California, and information obtained since the issuance of the 2002 Paper NESHAP.

Proposed Rules Related to PFFC

The PFFC CTG includes recommendations for both control requirements and best management practices for this source category. The control requirements apply only to individual PFFC lines with a potential to emit at least 25 tons per year VOC from coatings, prior to control. However, the Department has determined that incorporation of the PFFC CTG's recommended control requirements would provide no emission reduction benefit in New Jersey because the coating lines in the State to which the control requirements would apply either already meet these PFFC CTG controls or emit less than the 25 tpy threshold. In addition, a regulated source would be subject to a state-of-the-art (SOTA) review if it were the subject of a permit application (or modification) that proposes an emissions increase that would result in a potential to emit of over five tpy. The SOTA review would result in a requirement that the coating line install control measures equivalent to or more stringent than those recommended in the PFFC CTG, whether or not those recommended control measures are contained in the

Department's rules. Accordingly, the Department proposes to amend the VOC rules by adding new N.J.A.C. 7:27-16.7(u) to include only the PFFC CTG-recommended best management practices for this source category, which relate to the cleaning materials, rather than the actual coating processes. These best management practices apply to cleaning materials for PFFC facilities that have actual VOC emissions greater than 15 pounds per day prior to controls (the CTG-recommended applicability threshold). These best management practices include storing VOC-containing cleaning materials and used shop towels in closed containers and conveying VOC-containing cleaning materials in closed containers and pipes. This reduces exposure of the materials to the atmosphere, which in turn minimizes VOC emissions.

The Department proposes to use the existing defined term "paper coating" to describe these PFFC operations. The Department has identified 13 existing PFFC facilities in New Jersey to which the proposed PFFC best management practices requirements could apply. The existing definition of "paper coating" at N.J.A.C. 7:27-16.1 is broad enough to encompass these 13 existing facilities.

The proposed new best management practices requirements for paper coating operations at N.J.A.C. 7:27-16.7(u) are essentially the same as the existing best management practices requirements for similar types of coating operations at N.J.A.C. 7:27-16.7(t). For this reason, the Department proposes that the penalties at proposed amended N.J.A.C. 7:27A-3.10(m)16 for violations of the proposed best management practices requirements should also be the same, including their designation as minor or non-minor for purposes of the Grace Period Law, N.J.S.A. 13:1D-125 through 133.

Fiberglass Boat Manufacturing Materials (FBMM)

The FBMM CTG applies to facilities that manufacture hulls or decks of boats from fiberglass, or build molds to make fiberglass boat hulls or decks. The CTG recommendations do not extend to facilities that manufacture only parts of boats or boat trailers, unless they also manufacture hulls or decks of boats from fiberglass, or build molds to make fiberglass boat hulls or decks. The proposed new requirements apply to only four boat manufacturers in New Jersey.

One of the processes related to fiberglass boat manufacturing is "open molding." Open molding requires the use of three classes of materials: tooling resin and tooling gel coats; pigmented and clear gel coats; and production resins. For all materials, the monomer VOC is the compound, typically styrene or methyl methacrylate, that combines with itself or other similar compounds through a cross-linking reaction to become a cured thermosetting resin. The first step is the creation of a mold that will be the form of the finished part. The mold is produced using tooling resins and tooling gel coats that are different from the other raw materials in that they are harder, more heat resistant, and more dimensionally stable. A finished mold is first spray-coated with a clear or pigmented gel coat. This will become the outer surface of the finished part. After the gel coat has hardened, the inside of the gel coat is coated with a skin coat of polyester resin and short glass fibers. The purpose of the skin coat, which is considered to be a production resin, is to prevent distortion of the gel coat (known as "print through") from the subsequent layers of fiberglass and resin. After the skin coat has hardened, glass fibers, unsaturated polyester or vinylester resin (production resin), and catalyst are mixed and applied with either mechanical equipment or by hand using a bucket and brush or paint-type roller. After all of the resin has cured, the part is removed from the mold and the edges are trimmed to the final dimensions. Additional description of the fiberglass boat manufacturing process is provided in the FBMM CTG at pages 5 through 7.

The main contributors of VOC emissions at fiberglass boat manufacturing facilities are the monomer VOCs contained in the gel coats and other resin types. Not all of the VOCs in the materials used are emitted to the atmosphere, as some of the VOCs are used in cross-linking reactions of polymers and are retained in the finished material. An overall reduction of VOC content in production materials reduces potential emissions from extraneous VOCs during the manufacturing process. Cleaning activities other than surface preparation also contribute VOC emissions at facilities engaged in fiberglass boat manufacturing. Cleaning materials are used to remove residue or other unwanted materials from equipment related to manufacturing operations such as molds and prototypes, as well as the cleaning of application equipment, transfer lines, and other ancillary equipment. These cleaning materials are typically mixtures of VOC-containing solvents.

The EPA first published an assessment of VOC emissions from fiberglass boat manufacturing in 1990. This assessment evaluated VOC emissions from fiberglass boat manufacturing and potential control options. In 2001, the EPA promulgated the National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing, 40 CFR Part 63, Subpart VVVV (Boat Manufacturing NESHAP). Emission standards under the Boat Manufacturing NESHAP were for organic hazardous air pollutants (HAPs) based on low-HAP resins and gel coats and low-emitting resin application technology. In September 2008, the EPA published a new CTG for Fiberglass Boat Manufacturing Materials. The FBMM CTG was based on the 1990 VOC assessment, the 2001 Boat Manufacturing NESHAP, existing state VOC emission reduction approaches, such as those employed by California, and in consideration of information obtained since the issuance of the 2001 Boat Manufacturing NESHAP.

Proposed Rules Related to FBMM

The Department proposes to amend N.J.A.C. 7:27-16.1 to define terms in the proposed new fiberglass boat manufacturing materials rules. The proposed terms are defined based on their use or description in the CTG, or on their generally accepted meanings, since the CTG does not provide definitions. Alternatively, if another state or governing body has defined the term consistently with its accepted definition, the Department proposes to use that definition. If a term is commonly understood by the public and the regulated community, the Department proposes no definition. The Department has relied on the above criteria in defining terms throughout the proposed rules.

The proposed terms "application equipment cleaning," "flow coater," and "resin impregnator" are derived from descriptions in Section V, "Available Controls and Existing Federal, State, and Local Recommendations/Regulations" (pages 11, 12, and 19) of the FBMM CTG. Proposed "monomer VOC content" is derived from its description in Section VI, "Recommended Control Options" (pages 23 through 35) of the FBMM CTG.

The proposed definitions of the following terms are substantively identical to their definitions in the Bay Area Air Quality Management District (BAAQMD) regulations: "monomer VOC" (Section 8-50-227), "polyester" (Section 8-50-231), "polyester resin materials" (Section 8-50-232), "polyester resin operations" (Section 8-50-233), "polymer" (Section 8-50-234), "pultrusion" (Section 8-50-237), and "touch-up" (Section 8-50-245). All of these BAAQMD definitions are from Regulation 8 "Organic Compounds," Rule 50 "Polyester Resin Operations," which the FBMM CTG refers to as an example of a state rule that limits organic compound emissions from the manufacture of composite products made from polyester resin and gel coat. The existing definition of "repair" addresses only the repair of a VOC leak, and so is

not broad enough to cover its use in the proposed new FBMM CTG rules; accordingly, the Department proposes to amend the definition to make it consistent with the definition of repair in BAAQMD Section 8-50-239, as well as its usage in the FBMM CTG.

The proposed definitions of the following terms are substantively identical to their Federal definitions at 40 CFR Part 63, Subpart VVVV, NESHAP for Boat Manufacturing, the Federal rules on which the monomer VOC content and emission rate limits in the CTG were based: "assembly adhesives," "atomized resin application," "clear gel coat," "closed molding," "cured resin" or "cured gel coat," "fiberglass boat," "filled tooling resin" or "filled production resin," "gel coat," "mold," "nonatomized resin application," "open molding resin and gel coat operation," "pigmented gel coat," "production resin," "resin," "resin and gel coat mixing operation," "roll-out," "skin coat," "tooling gel coat," "tooling resin," "vacuum bagging," and "vinylester resin."

As recommended in the FBMM CTG, proposed new N.J.A.C. 7:27-16.14(a) establishes an applicability limit of 15 pounds per day from all fiberglass boat manufacturing operations, and proposed new N.J.A.C. 7:27-16.14(b) exempts those facilities that only manufacture parts of boats. Proposed new N.J.A.C. 7:27-16.14(d) provides three compliance options for meeting either the maximum monomer VOC content standard or the monomer VOC mass emission limit. The first option, set forth in proposed new N.J.A.C. 7:27-16.14(d)1, is to limit the monomer VOC content in any resin or gel coat that the facility purchases. Stakeholders have indicated that compliant materials have become the industry standard and are being used by boat manufacturers in New Jersey. Proposed new N.J.A.C. 7:27-16.14(d)1i, Table 14A, sets forth the maximum monomer content for open molding resin and gel coat operations based upon the material being applied and the application method. These monomer VOC content limits are the limits

recommended in Table 3 of the FBMM CTG, at page 27. Proposed new N.J.A.C. 7:27-16.14(d)1ii provides the option of documenting compliance with the limits in Table 14A by using an annual weighted average calculated by using proposed Equation 14A, which is identical to Equation 1 at page 27 of the FBMM CTG. Proposed new N.J.A.C. 7:27-16.14(d)2 provides the second compliance option, which is to use a facility-specific monomer VOC emission rate established based on the mass of each material used on a 12-month rolling average. The methodology for determining this emission rate is also taken from the FBMM CTG. The last compliance option, at proposed new N.J.A.C. 7:27-16.14(d)3, is the installation of a VOC control device to comply with the facility-specific monomer VOC mass emission limit established using Equation 14B at proposed new N.J.A.C. 7:27-16.14(d)2i. The three proposed compliance methods (maximum or weighted average monomer VOC content, facility-specific monomer VOC emission rate, and installation of a control device) are considered equivalent methods of control, and are consistent with the CTG-recommended compliance options.

For those materials that exceed the monomer VOC limits in Table 14A, and for filled production resin and filled tooling resins, the facility can demonstrate compliance using equations that are based upon the types of materials purchased in the preceding 12 calendar months. The equations in the proposed new rules are identical to those in the FBMM CTG, except the calculation in the proposed new rules is based upon the types of materials purchased, rather than used, in the preceding 12 calendar months. The Department has concluded that basing compliance on amount "purchased" rather "used" would provide roughly equivalent information, since the standard is based on each 12-month period; material is purchased throughout the year, and is not usually stockpiled for extended periods. According to stakeholders who would be subject to proposed N.J.A.C. 7:27-16.14, keeping track of purchases

is less burdensome than keeping track of material used. The latter requires the additional step by employees to measure the facility's quantity of material on hand at the start and end of each production shift or day, and generate and maintain a record of those measurements. The former is an accounting task based on documents a facility already maintains as part of its business.

The Department also follows the FBMM CTG recommendations in establishing the monomer VOC limit for filled resins at proposed new N.J.A.C. 7:27-16.14(e). A filled resin is resin to which an inert material has been added to change viscosity, density, shrinkage, or other physical properties. These filled resins have a higher initial monomer VOC content than standard production or tooling resins, but the addition of the filler lowers the monomer VOC emission rate, making a higher VOC limit appropriate. The method for determining this filled resin monomer VOC emission rate at proposed N.J.A.C. 7:27-16.14(e) is also recommended in the FBMM CTG.

The exemption of certain materials and operations from the requirements at new N.J.A.C. 7:27-16.14(d) and (e) at proposed new N.J.A.C. 7:27-16.14(c) is also consistent with the FBMM CTG recommendations. The exemptions at proposed N.J.A.C. 7:27-16.14(c)1 through 3 and 6 are identical to those in the FBMM CTG, except for the method of calcuation under paragraphs (c)2 and 3. The Department based the proposed VOC limit exemptions for repair and touch-up, and for 100-percent pure vinylester resin, at new N.J.A.C. 7:27-16.14(c)2 and 3 on the purchased amounts of each compared to the total amount of materials purchased by the facility per 12-month period. Proposed new N.J.A.C. 7:27-16.14(c)4 exempts a surface coating formulation applied to fiberglass boats or pleasure crafts, as these operations are addressed at proposed new N.J.A.C. 7:27-16.15. Similarly, proposed N.J.A.C. 7:27-16.14(c)5 exempts certain industrial adhesives used in the assembly of fiberglass boats, as these operations are addressed at N.J.A.C.

7:27-26, which regulates a wide variety of adhesives, including those used in the assembly of fiberglass boats.

Proposed new N.J.A.C. 7:27-16.14(f) follows the CTG recommendations in setting limits for cleaning materials, including cleaning solvents, and solvents used to remove cured resin and gel coat from application equipment. The Department also proposes the CTG-recommended requirements regarding the covering of all resin and gel containers with a capacity equal to greater than 55 gallons. As noted in the FBMM CTG, the same cleaning materials used to comply with the Boat Manufacturing NESHAP will meet the VOC content and vapor pressure limits recommended in the FBMM CTG. Because all major source fiberglass boat manufacturers have implemented these measures, the EPA saw these measures as technically and economically feasible for reducing these VOC emissions.

To facilitate monitoring and verifying compliance with the FBMM requirements, the Department is proposing recordkeeping requirements at new N.J.A.C. 7:27-16.14(g), (h), (i), and (j). The FBMM CTG does not address recordkeeping. The proposed monitoring and recordkeeping procedures are consistent with the Department's existing requirements to which similar facilities and operations are subject.

Existing N.J.A.C. 7:27-16.16 regulates VOC source operations, including the FBMM source category, that are not otherwise specifically addressed by the requirements of any other section of N.J.A.C. 7:27-16. Because the FBMM source category will be regulated at proposed new N.J.A.C. 7:27-16.14, the Department proposes to amend N.J.A.C. 7:27-16.16(a) to add this source category to the list of sources that are exempted from the applicability of N.J.A.C. 7:27-16.16. Proposed amended N.J.A.C. 7:27-16.16(b) retains the applicability of N.J.A.C. 7:27-

16.16 to fiberglass boat or vessel manufacturing operations that are not regulated by proposed new N.J.A.C. 7:27-16.14.

The proposed penalties at N.J.A.C. 7:27A-3.10(m)16 for violations of proposed new N.J.A.C. 7:27-16.14(d) and (e) are consistent with those for violations of similar requirements in N.J.A.C. 7:27-16, such as the VOC limits at N.J.A.C. 7:27-16.7(c). The proposed penalty schedule for violations of proposed new N.J.A.C. 7:27-16.14(f) is also based on existing penalties for violations of other best management practices provisions in N.J.A.C. 7:27-16, such as the requirements at N.J.A.C. 7:27-16.7(t). Similarly, the Department based the proposed penalty schedule for violations of proposed new N.J.A.C. 7:27-16.14(g) through (j) on existing penalties for violations of other recordkeeping requirements in N.J.A.C. 7:27-16, such as those at existing N.J.A.C. 7:27-16.5(j) and 16.7(m). In addition, the Department proposes to designate these proposed new penalties as either minor or non-minor in accordance with the Grace Period Law, N.J.S.A. 13:1D-125 through 133, consistent with its designation of similar penalty provisions in N.J.A.C. 7:27A-3.10(m).

The Department also proposes to correct an error in N.J.A.C. 7:27-16.16(a). The Department promulgated N.J.A.C. 7:27-16.16(a)14 through 17 with asterisks after paragraph numbers 14 through 17, in coordination with the introductory language at N.J.A.C. 7:27-16.16(a) that references these asterisks. (See 25 N.J.R. 3385 and 26 N.J.R. 2657.) Since then, N.J.A.C. 7:27-16.16 was amended twice (see 35 N.J.R. 2509(a) and 37 N.J.R. 3976(a)) and corrected administratively once (see 37 N.J.R. 590(a)). None of these actions addressed N.J.A.C. 7:27-16.16(a)14 through 17. It appears that the asterisks were inadvertently omitted during the codification of these provisions after the 1994 adoption. The proposed amendment restores the asterisks.

Miscellaneous Metal and Plastic Parts Coatings (MMPPC)

The MMPPC categories under section 183(e) of the CAA include the coatings that are applied to the surfaces of a varied range of metal and plastic parts and products. Such parts or products are constructed either entirely or partially from metal or plastic. These miscellaneous metal products and plastic parts include, but are not limited to, metal and plastic components of the following types of products, as well as the products themselves: fabricated metal products, molded plastic parts, small and large farm machinery, commercial and industrial machinery and equipment, automotive or transportation equipment, interior or exterior automotive parts, construction equipment, motor vehicle accessories, bicycles and sporting goods, toys, recreational vehicles, pleasure craft (recreational boats), extruded aluminum structural components, railroad cars, heavier vehicles, lawn and garden equipment, business machines, laboratory and medical equipment, electronic equipment, steel drums, metal pipes, and numerous other industrial and household products (hereinafter collectively referred to as "miscellaneous metal and plastic parts").

The surface coating operation addressed by the MMPPC CTG consists of a series of one or more coating applicators and any associated drying area or oven wherein the coating is applied, dried, and/or cured. The miscellaneous metal and plastic parts surface coating process can be divided into three main unit operations: surface preparation, coating application, and cleaning activities/best management practices. Surface preparation is performed prior to coating, primarily to correct any flaws in the part and to prepare the part to receive the coating. The VOC emissions from surface preparation are negligible, and so are not addressed by the MMPPC CTG or the within proposed rules. Surface coating is accomplished by the application

of a coating to the metal or plastic part, followed by curing or drying the coating. The coating itself may be in the form of a liquid or powder. Several different types of application technology are used to apply liquid coatings, and the selection of the application technology can have a significant effect on the amount of coating used and the resulting VOC emissions from the operation. The MMPPC coating operation ends with cleaning activities that involve the use of cleaning materials to remove coating residue or other unwanted materials that accrued during the coating operation. These cleaning materials are typically mixtures of VOC-containing solvents.

The EPA first published a CTG for the Surface Coating of Miscellaneous Metal Parts and Products in 1978. This outlined the recommended control options that were considered RACT at the time of publication. In 1988, the EPA promulgated NSPS for Surface Coating of Plastic Parts for Business Machines (Business Machine Plastic Parts NSPS) (40 CFR Part 60 Subpart TTT). This established emission standards that varied based on prime, color, texture, and touch-up coatings of plastic parts for business machines. In 1994, the EPA published an "Alternative Control Techniques Document: Surface Coating of Automotive/Transportation and Business Machine Plastic Parts," which provided information on emissions, controls, control options, and costs to be used in developing rules based on RACT for these source categories. In 2004, the EPA outlined emissions levels that it considered to constitute Maximum Achievable Control Technologies in the NESHAP for Surface Coating of Miscellaneous Metal Parts and Products (Metal Parts NESHAP; 40 CFR Part 63 Subpart MMMM), and the NESHAP for Surface Coating of Plastic Parts and Products (Plastic Parts NESHAP; 40 CFR Part 63 Subpart PPPP). In September 2008, the EPA published a new CTG for MMPPC. The 2008 MMPPC CTG was based on the 1978 CTG, 1988 Business Machine Plastic Parts NSPS, the 2004 Metal Parts NESHAP, and the 2004 Plastic Parts NESHAP, existing state VOC emission reduction

approaches, such as those employed by California, and in consideration of information obtained since the 2004 issuance of the Metal Parts NESHAP.

There are VOC emissions associated with the surface coating operations in five MMPPC categories: pleasure craft surface coating, metal parts and products surface coating operations, plastic parts surface coating operations, automotive/transportation and business machine plastic parts and products surface coating operations, and motor vehicle material surface coating operations. The MMPPC CTG addresses these five categories individually through evaluating the unique characteristics involved in coating the types of parts listed in the category. As discussed above, the MMPPC CTG was developed from regulations and guidance documents that concerned only one or two categories. For example, the proposed "Metal Parts" and "Automotive/Transportation and Business Machine Plastic Parts" limits vary based on how the part is dried after coating; however, the other three categories do not address the part drying process. This and other differences among the categories reflect the specific characteristics of the categories.

The MMPPC CTG recommends that states require a facility to use a specific application method when the facility does not achieve an overall control efficiency of at least 90 percent through the use of add-on controls (option three below). The MMPPC CTG-recommended application methods are electrostatic spray, HVLP (high volume low pressure) spray, flow coat, roller coat, dip coat (including electrodeposition), airless spray, and air-assisted airless spray. These application methods significantly reduce the amount of coating used and result in lower VOC emissions than other methods. (See MMPPC CTG page 28.) The MMPPC CTG also recommends that states require best management practices for the handling of coatings and cleaning materials to further reduce VOC emissions from these coatings.

The MMPPC CTG recommends that states provide MMPPC facilities three options for controlling the VOC emissions from the coatings for all categories, except motor vehicle material surface coating operations. The three options are VOC content limits based on the use of low-VOC content coatings and specified application methods to achieve good transfer efficiency; equivalent VOC emission rate limits based on the use of a combination of low VOC coatings, and specified application methods, as well as add-on controls; and an overall VOC control efficiency of the facility, based entirely on add-on controls rather than coating content and application methods. For motor vehicle material surface coating operations, the MMPPC CTG recommends providing facilities only options one and three. The options are discussed further below.

Proposed Rules Related to MMPPC

The Department proposes to amend N.J.A.C. 7:27-16.1 to define terms in the proposed new MMPPC rules, based on the same criteria discussed above with regard to the definitions in the proposed FBMM rules. The following proposed terms are substantively identical to their definitions in the MMPPC CTG, Appendix H, Recommended Coating Category Definitions: "adhesion primer" or "adhesion promoter," "air-dried coating," "antifoulant coating" or "antifouling coating," "baked coating," "black automotive coating," "business machine," "camouflage coating," "clear coating," "drum," "electric-dissipating coating," "electric-insulating varnish," "electrostatic prep coat," "EMI/RFI shielding," "etching filler," "finish primer/surfacer," "flexible coating," "fog coat," "gloss reducer," "heat-resistant coating," "high bake coating," "high build primer/surfacer," "high-performance architectural coating," "high-temperature coating," "mask coating," "metallic coating," "metal particle," "military

specification coating," "mold seal coating," "motor vehicle bedliner," "motor vehicle cavity wax," "motor vehicle deadener," "motor vehicle gasket/gasket sealing material," "motor vehicle lubricating wax/compound," "motor vehicle sealer," "motor vehicle truck interior coating," "motor vehicle underbody coating," "multi-colored coating," "multi-component coating," "one-component coating," "optical coating," "pan-backing coating," "pleasure craft," "pleasure craft coating," "prefabricated architectural component coating," "pretreatment coating," "red automotive coating," "repair coating," "resist coating," "shock-free coating," "silicone-release coating," "solar-absorbent coating," "stencil coat," "stencil coating," "texture coat," "touch-up coating," and "translucent coating."

The proposed definition of "aerosol coating product" is from 40 CFR Part 59, Subpart E, National Volatile Organic Compound Emission Standards for Aerosol Coatings, specifically at 40 CFR 59.503. The Department proposes a variant on "antifoulant coating" as "antifouling coating" since the terms antifoulant and antifouling are used interchangeably by the industry and regulated community.

The Department proposes to define "low bake coating," a term that is used but not defined in the CTG. (See Automotive/Transportation and Business Machine Plastic Parts VOC Content Limits, Table 4 of the MMPPC CTG, which recommends VOC limits for "high bake coatings," defined in the CTG, and "low bake coatings.") Presuming that a low bake coating is one that does not meet the definition of high bake coatings - that is, they are not designed to cure only at temperatures of more than 90 degrees Celsius - the Department proposes to define "low bake coating" as one that is designed to cure only at temperatures at or below 90 degrees Celsius. In addition, to avoid confusion with the CTG-defined term "bake coating," which has the same meaning as "high bake coating," the proposed definitions of "bake coating," "low bake coating,"

and "high bake coating" are modified from the CTG definition to clarify that low and high bake coatings are only defined for the purposes of setting requirements for coatings in the Automotive/Transportation Coatings category.

The proposed definitions of "dip coat," "electrostatic spray," "flow coat," "high-volume, low-pressure (HVLP) spray," and "roll coat" are derived from their descriptions in Section IV.A.2 "Coating Application" (pages 9 and 10) of the MMPPC CTG. Proposed "high gloss topcoat (craft)" or "high gloss coating (craft)" is substantively identical to the Appendix H definition of "high gloss coating" – a term only used in connection with pleasure craft and referred to alternatively in MMPPC CTG Tables 5 and 10 as "high gloss topcoat." Appendix H provides a recommended generic definition for "extreme high gloss coating" for metal and plastic part surface coating, but provides and recommends a separate definition for this term when used for pleasure craft coating. These coatings are defined as having different reflective levels as determined by different testing protocols. The Department proposes definitions that would differentiate between these two variations and also indicate parenthetically the use for each, so that the term ending in "(metal)" is the generic definition and the term ending in "(craft)" is used in the context of pleasure craft coatings. In addition, the Department is proposing the alternate "extreme high gloss topcoat (craft)" to reflect the variant used in MMPPC CTG Tables 5 and 10, referenced above.

In addition, the Department proposes to define "extreme high gloss coating (craft)" as having a minimum 90 percent reflectance, rather than the minimum 95 percent reflectance in the Appendix H definition. This would allow a greater range of products to qualify for the higher VOC limit. These coatings are applied under a variety of environmental conditions, which can have an effect on the final gloss level of the product at the point of application, such that, under

certain conditions, the 95 percent reflectance cannot be achieved without using a higher VOC-content product. Extending the limit to 90 percent reflectance for the "extreme high gloss coating (craft)" category would allow the industry to successfully apply this coating under a greater range of atmospheric/weather conditions without using a higher VOC-content product unnecessarily.

The proposed amended definition of "extreme performance coating" makes it consistent with its recommended definition in Appendix H, and more descriptive than its existing definition in N.J.A.C. 7:27-16.1. The proposed amended definition provides examples of what could cause corrosive atmospheres or fluids, states that extreme performance coatings could be used on equipment that undergoes repeated heavy abrasion, and offers specific examples of equipment that must have extreme performance coatings applied. This equipment is primarily used outdoors. The proposed amended definition of "plastic parts" clarifies that the existing definition in N.J.A.C. 7:27-16.1 also applies to "plastic products."

For "pretreatment wash primer," the proposed definition includes content requirements of no more than 25 percent by weight for solids and at least 0.1 percent acids, which is less stringent than the CTG-recommended percent solids limit of 12 percent and at least 0.5 percent acids requirement. The proposed definition allows for the introduction of safer, alternative etch systems that may have a higher VOC content, but are not based on toxic substances, such as zinc tetroxy chromate.

Appendix H provides a recommended generic definition for "stencil coating" but provides and recommends a different definition for the almost identical term "stencil coat" when used for automotive/transportation and business machine plastic parts surface coating operations. The Department proposes to differentiate between these two terms by indicating parenthetically

the use for each, so that the term ending in "(metal and plastic)" is the generic definition and the term ending in "(automotive/transportation)" is used in the context of automotive/transportation and business machine plastic parts surface coating.

Appendix H does not provide a generic definition for "topcoat," presumably because this term is generally well understood by the regulated community and the public. "Topcoat" is, however, included in the Appendix H Recommended Coating Category Definitions and Related Definitions for Pleasure Craft Surface Coating, which defines terms specific to their use in connection with pleasure craft coating operations. Proposed "topcoat (craft)" matches this definition, but reflects the limited use of this term in connection with pleasure craft coating operations.

Appendix H provides a recommended generic definition for "vacuum-metalizing coating," but provides and recommends a separate different definition for this term when used for automotive/transportation and business machine plastic parts surface coating. The Department proposes to differentiate between these two terms by indicating parenthetically the use for each, so that the term ending in "(metal and plastic)" is the generic definition and the term ending in "(automotive/transportation)" is used in the context of automotive/transportation and business machine plastic parts surface coating.

The Department proposes to use Connecticut's definitions for "air-assisted airless spray," "automotive/transportation part," "electric-insulating and thermal-conducting coating," "motor vehicle," "overall control efficiency," "powder coating," "safety-indicating coating," and "solid-film lubricant." These terms are derived from the Connecticut Air Pollution Control Regulations (Connecticut regulations) at R.C.S.A. Section 22a-174-20(s)(1). Connecticut's definitions are consistent with the generally accepted meanings. In addition, EPA has approved the revision of

Connecticut's SIP, finding that Connecticut's Miscellaneous Metal and Plastic Parts Coatings rules at Section 22a-174-20(s) meet RACT for this CTG category, providing additional support for the appropriateness of New Jersey promulgating definitions consistent with or identical to Connecticut's. (See 79 FR 32873, June 9, 2014.) As mentioned above, the Department also proposes to use Connecticut's definition of "air-assisted airless spray." This Connecticut definition is an accurate and concise summary of the description of "air-assisted airless spray" in the MMPPC CTG. In addition, the Department proposes to use Connecticut's definition of "overall control efficiency" as "the product of the capture efficiency and the control device efficiency." The term "capture efficiency" is already defined in N.J.A.C. 7:27-16.1.

The proposed definition of "powder coating" is consistent with the description of "powder coating" in the CTG and includes the various types of "powder coating," such as ultraviolet curable powder coatings, outlined in the CTG. (CTG for MMPPC, page 13.) "Electric-insulating and thermal-conducting coating," "safety-indicating coating," and "solid-film lubricant" are metal parts coatings that the CTG recommends exempting from VOC limitations and application methods. The proposed definitions of these terms, in addition to being derived from the Connecticut's regulations, are consistent with their definitions in the South Coast Air Quality Management District (SCAQMD) Rule 1107 (b) "Coating of Metal Parts and Products - Definitions." The definition of "solid-film lubricant" is consistent with the definition of this term in BAAQMD Regulation 8 Organic Compounds, Rule 19 Surface Preparation and Coating of Miscellaneous Metal Parts and Products (BAAQMD MMPP rules). The proposed definitions of "electric-insulating and thermal-conducting coating" and "safety-indicating coating" are consistent with Maryland's definition of those terms in its rules at COMAR 26.11.19.08A, "Metal Parts and Products Coating." Given the widespread use of these

definitions and the approval by EPA of Connecticut's SIP, the Department has concluded that these definitions have become standard and accurately reflect their usage in the CTG.

The proposed new definition of "antifouling sealer/tiecoat" reflects the use of this type of coating to address certain biocide coatings used in the past, but are now banned. The coatings are discussed further below, in the summary of proposed N.J.A.C. 7:27-16.15(b). The Department proposes "metal and plastic parts application methods" as a shorthand to refer to the group of seven CTG-recommended application methods that recur throughout the proposed rules.

The proposed new MMPPC CTG-based requirements for MMPPC operations at N.J.A.C. 7:27-16.15 replace the requirements for those operations at existing N.J.A.C. 7:27-16.7(f), Surface coating and graphic arts operations. Accordingly, the Department proposes to delete the Coating of Miscellaneous Metal Parts and Products Type of Operation category from N.J.A.C. 7:27-16.7(f), Table 7B.

Proposed new N.J.A.C. 7:27-16.15(a) establishes the MMPPC CTG-recommended applicability limit of 2.7 tons of actual VOC emissions during any consecutive 12-month period from all MMPPC operations; and exempts surface coating operations that exclusively use powder coating since, as noted in the MMPPC CTG, power coatings are an inherently low-VOC alternative to many liquid coatings, based on the annual VOC emissions from all operations and related cleaning activities at the facility where the operation is located.

Tables 15A, 15B, 15C, 15D, and 15E at proposed new N.J.A.C. 7:27-16.15(b) through (f) contain the VOC limitations for the unique coating categories, and are intended to clarify the VOC limitations applicable to each type of coating category. The MMPPC CTG recommends five separate sets of VOC emission limits and proposed new N.J.A.C. 7:27-16.15 is consistent

with this recommendation. However, there are metal and plastic products and parts coatings regulated in more than one set of VOC emission limits. EPA developed these sets from the MMPPC CTG supporting documentation, such as the "Alternative Control Techniques (ACT) Document: Surface Coating of Automotive/Transportation and Business Machine Plastic Parts" (EPA 453/-94-017). Page 2-1 of this ACT Document states, "The plastic parts surface coating industry is complex, but it can be categorized into three general sectors: (1) automotive transportation; (2) business machines; and (3) miscellaneous." This is the reason the MMPPC CTG provides two separate VOC content limit tables for "Plastic Parts and Products" and "Automotive/Transportation and Business Machine Plastic Parts," contained in proposed Tables 15C and 15D.

EPA also recommends in the MMPPC CTG that for all coating operations the VOC limits and application methods not apply to aerosol coating products because aerosol coatings are "a separate [VOC product] category under Section 183(e), [of the CAA]." Aerosol coatings are not included in the miscellaneous metal parts or plastic parts coating categories, but are regulated by a Federal VOC rule at 40 CFR Part 59, Subpart E, National Volatile Organic Compound Emission Standards for Aerosol Coatings. Proposed new N.J.A.C. 7:27-16.27(b)3 exempts aerosol coatings from all of N.J.A.C. 7:27-16.

With the limited exceptions discussed below, proposed new N.J.A.C. 7:27-16.15 contains the MMPPC CTG recommendations as follows: pleasure craft surface coating operations at proposed new N.J.A.C. 7:27-16.15(b); metal parts and products surface coating operations at proposed new N.J.A.C. 7:27-16.15(c); plastic parts surface coating operations at proposed new N.J.A.C. 7:27-16.15(d); automotive/transportation and business machine plastic parts and products surface coating operations at proposed new N.J.A.C. 7:27-16.15(e); motor vehicle

material surface coating operations at proposed new N.J.A.C. 7:27-16.15(f); and best management practices relating to surface coating operations, including cleaning, at proposed new N.J.A.C. 7:27-16.15(g). The MMPPC CTG recommends three options that could be used to demonstrate compliance. Proposed N.J.A.C. 7:27-16.15 includes all three compliance options. Option one requires the use of coatings that do not exceed the proposed VOC limits, which are calculated as the mass of VOCs per volume of coating (excluding water and exempt organic substances). Option two requires a combination of low VOC coatings and installed VOC control equipment, expressed in terms of mass of VOCs per volume of coating solids as applied. Option three requires a facility to install a VOC control apparatus and achieve a minimum overall control efficiency of 90 percent.

Proposed N.J.A.C. 7:27-16.15(b) applies to pleasure craft surface coating operations, and requires facilities to control VOC emissions through option two, which is a combination of low VOC coatings and control equipment. Rather than using the CTG-recommended limitations expressed as the mass of VOCs per volume of solids, the rule uses proposed Equation 15A, which provides a straightforward method for determining the minimum required overall control efficiency (the output of Equation 15A), which is equivalent to the CTG-recommended limitations. Equation 15A uses three readily accessible parameters: mass of VOCs per volume of coating, as listed in Tables 15A, 15B, 15C, or 15D for the applicable coating category; VOC content per volume of coating, as applied; and density of the VOCs in the coating, as applied. The CTG provides no compliance verification mechanism for the mass of VOCs per volume of coating solids, as applied. Equation 15A allows a compliance demonstration through the monitoring and recording of the three parameters and confirmation of the control device efficiency.

The proposed rules contain less stringent VOC content limits for extreme high gloss topcoat (craft) and other substrate antifoulant coating than those recommended in the MMPPC CTG. This departure from the MMPPC CTG recommendation is based on the recommendation of and information supplied by the American Coatings Association (ACA) during the stakeholder process. The ACA explained that the EPA did not fully consider pleasure craft coating throughout the CTG development process and did not have key information concerning the VOC content limits for the two coating categories noted. The ACA also commented that the experience of SCAQMD demonstrates that the CTG limits, which were taken directly from SCAQMD Rule 1106.1, are not practical. For example, the recommended VOC content limit of 330 gram per liter (g/l) for "other substrate antifoulant coating" category is not consistent with the VOC content limit established by the National Emission Standards for Shipbuilding and Ship Repair (Surface Coating), 40 CFR Part 63 Subpart II, or the VOC content limit of 400 g/l established by SCAQMD Rule 1106 Marine Coating Operations for antifoulant coatings at Rule 1106(c)1 (available at www.arb.ca.gov/DRDB/SC/CURHTML/R1106.HTM). Also, an antifoulant coating with VOC content that is lower than 400 g/l requires more applications than the higher VOC content coating, resulting in greater overall VOC emissions.

Proposed new N.J.A.C. 7:27-16.15(b) also separately addresses "antifouling sealer/tiecoat," a surface coating category that would otherwise be part of the "other substrate antifoulant coating" coating category. The Department proposes separating this specialized coating because the VOC content limit that would be appropriate for "other substrate antifoulant coating" would be too stringent for this coating. This is consistent with regulations of other states, including New York and Connecticut. This specialized coating type is required to seal in old tributyltin (or TBT)-containing antifoulings and to promote adhesion of biocide-free, non-

stick foul release coatings when applied to vessels. TBT is an anti-fouling agent used on the hulls of ships to prevent the growth of marine organisms. Stakeholders encouraged the Department to add this new separate category, and set an appropriate (less stringent) VOC content limit, to address these developments and the special characteristics of this coating.

The International Convention on the Control of Harmful Anti-Fouling Systems on Ships (AFS Convention) was adopted under the auspices of the International Maritime Organization (IMO) on October 5, 2001, and entered into force on September 17, 2008. The United States signed the AFS Convention on December 12, 2002, and ratified it on August 21, 2012. The Convention bans the application or use of TBT, calls for its removal from existing anti-fouling systems by January 1, 2008, and establishes a detailed and science-based mechanism to consider future restrictions of harmful substances in anti-fouling systems. The United States implements the AFS Convention through 33 U.S.C. §§ 3801-3857. (See National Oceanic and Atmospheric Administration General Counsel's website at www.gc.noaa.gov/gcil_mp_antifouling.html.)

In addition, the MMPPC pleasure craft coating category does not include coatings that are a part of other product categories on EPA's CAA Section 183(e) list for which CTGs have been published, or that are included in other CTGs. For some of these coatings, the VOC limits recommended in other CTGs are too stringent for use by the pleasure craft industry. As a result, members of the pleasure craft coatings industry contacted the EPA requesting reconsideration of the pleasure craft VOC limits contained in EPA's 2008 MMPPC CTG. In response, the EPA issued a memorandum on June 1, 2010, entitled "Control Technique Guidelines for Miscellaneous Metal and Plastic Part Coatings—Industry Request for Reconsideration," recommending that the pleasure craft industry work with state agencies during their RACT rule development process to assess what is reasonable for the specific sources regulated. EPA has

stated that states can use the recommendations from the MMPPC CTG to determine what constitutes RACT for pleasure craft coating operations in their particular ozone nonattainment area. CTGs impose no legally binding requirements on any entity, including pleasure craft coating facilities. As stated in the memorandum, the EPA will evaluate state-developed RACT rules and determine whether the submitted rules meet the RACT requirements of the CAA.

Proposed new N.J.A.C. 7:27-16.15(c) governs VOC limits from metal parts and products surface coating operations other than pleasure craft, discussed above, automotive/transportation and business machine plastic parts and products surface coating operations and motor vehicle material surface coating operations, which are governed by proposed new N.J.A.C. 7:27-16.15(e) and (f). The proposed VOC content limits for metal parts subject to N.J.A.C. 7:27-16.15(b) are contained in Table 15B, which conforms to the recommendations of the MMPPC CTG, except with regard to high-performance architectural coatings, pretreatment wash primer, aluminum substrate antifoulant coating, and drum coating (reconditioned, interior).

The CTG recommends VOC control limits for prefabricated architectural one-component and multi-component coatings. These are consistent with the limits in existing Table 7B at N.J.A.C. 7:27-16.7, Surface coating and graphic arts operations. However, the CTG recommends an allowable limit of 6.2 pounds VOC/gallon for high performance architectural coatings, which is higher (less stringent) than the existing VOC limit in Table 7B of 3.5 pounds per gallon. This is a unique, limited category that must meet the requirements established by the Architectural Aluminum Manufacturer Association (AAMA) set forth at either AAMA 2604-05 (Voluntary Specification, Performance Requirements, and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels) or those set forth at AAMA 2605-05 (Voluntary Specification, Performance Requirements and Test Procedures for Superior

Performing Organic Coatings on Aluminum Extrusions and Panels). (For AAMA 2604-05 and 2605-05, see www.aamanet.org.)

The CTG-recommended 6.2 pounds VOC/gallon limit is more stringent than the 27.5 pounds VOC/gallon limit for high performance coatings in the MMPP NESHAP. The MMPP NESHAP defines "high performance architectural coating" as any coating applied to architectural subsections, which is required to meet the specifications of Architectural Aluminum Manufacturer's Association's publication number AAMA 605.2-2000; "high performance coating" as any coating that meets the definition of high performance architectural coating or high temperature coating in this section; and "high temperature coating" as any coating applied to a substrate that during normal use must withstand temperatures of at least 538 degrees Celsius (1,000 degrees Fahrenheit). (NOTE: AAMA 2604-05 and AAMA 2605-05 superseded AAMA 605.)

It is reasonable for the Department to propose a less stringent VOC limit for high performance architectural coating than the VOC limit at existing Table 7B because Table 7B does not set limits for a unique, individual coating category like high performance architectural coating; the MMPP NESHAP establishes a less stringent limit; and both the MMPP NESHAP and the MMPPC CTG reflect the regulated community's current use and formulations of this coating.

The proposed VOC limits for pretreatment wash primer are also less stringent than the existing limits at Table 7B. Pretreatment wash primer, which is formulated to provide corrosion resistance, has unique properties beyond those of typical coatings. EPA, several other states, and industrial stakeholders concur that a higher VOC limit is necessary for this type of coating. EPA recommends in the MMPPC CTG an allowable limit of 6.5 pounds VOC/gallon for pretreatment

wash primer, which is higher (less stringent) than the existing VOC limits in Table 7B. The recommended 6.5 pounds VOC/gallon limit is equivalent to the pretreatment wash primer limit in 40 CFR Part 63, Subpart II, National Emission Standards for Shipbuilding and Ship Repair (Surface Coating). This category is used to coat not only metals, but fiberglass as well, and assists in the adhesion of subsequent coatings.

It is reasonable for the Department to propose a limit for pretreatment wash primer that is higher (less stringent) than the limit at existing Table 7B because Table 7B does not set limits on unique, individual coating categories; pretreatment wash primer is used to coat fiberglass, which requires different product characteristics; and the higher (less stringent) limit in the Federal regulation and recommended in the CTG is more representative of the regulated community's use and formulations of this coating.

The proposed VOC limits for aluminum substrate antifoulant coating are less stringent than the existing limit at Table 7B. The CTG recommends a VOC control limit for "other substrate antifoulant coatings" that is consistent with the current levels in Table 7B; however, the CTG recommends a unique allowable limit of 4.7 pounds VOC/gallon for an aluminum substrate antifoulant coating that is less stringent than the existing VOC levels in Table 7B. The aluminum substrate antifoulant coating is formulated to prevent or reduce the attachment of biological organisms and has unique properties beyond those of typical coatings. Air pollution control regulations of the Mojave Desert Air Quality Management District (MDAQMD) and Ventura County Air Pollution Control District (VCAPCD) regulations, which are referenced in the CTG, include this limit. In addition, SCAQMD is proposing this limit. (See SCAQMD Preliminary Draft Staff Report dated August 2015, page 2-10, available from AQMD, www.aqmd.gov/home/regulations/rules.)

The proposed limit for aluminum substrate antifoulant coating that is less stringent than the limit at existing Table 7B is appropriate because Table 7B does not set limits on unique, individual coating categories; aluminum substrate antifoulant coating is used to control biological organisms, and, therefore, requires different product characteristics; and the less stringent limit in the Federal rule and recommended in the CTG is more representative of the regulated community's use and formulations of this coating.

The Department proposes a maximum VOC content for "drum coating, reconditioned, interior" of 4.2 pounds VOC/gallon at proposed Table 15B. Existing Table 7B sets a maximum VOC content limit for "clear coating" at 4.3 pounds VOC/gallon and existing N.J.A.C. 7:27-16.1 defines "clear coating" as "a coating that lacks color and opacity or is transparent and uses the undercoat as a reflectant base or undertone color and any coating used as an interior protective lining on any cylindrical metal shipping container of greater than one gallon capacity." Consequently, facilities that coat the interior of reconditioned drums would be subject to a more stringent limit under the proposed new rule. This is reasonable, since the proposed new limit is only slightly more stringent (by 0.1 pound/gallon) and is more representative of the current formulations of this coating as applied by the regulated community.

Stakeholders requested that the Department include an exemption that is not in the MMPPC CTG, which is a partial exemption for military specification coatings from the new VOC limits for metal parts and products proposed at N.J.A.C. 7:27-16.15(c)1. Proposed N.J.A.C. 7:27-16.15(c)3vii exempts any military specification coating that has been formulated to meet a higher, less stringent VOC content limit than listed in Table 15B. Specifications for military coatings include VOC content limits, and some of these coatings cannot perform to military specification if the coating must meet a lower, more stringent VOC content limit, such

as would apply in the absence of the proposed exemption. These exempted coatings remain subject to recordkeeping, as set forth in the proposed rules.

Proposed new N.J.A.C. 7:27-16.15(j) is based on existing N.J.A.C. 7:27-16.12(d), which sets forth a procedure for determining the VOC content of a given coating for purposes of complying with the limits at proposed N.J.A.C. 7:27-16.15(b)1, (c)1, (d)1, (e)1, and (f)1. The proposed new rule follows the CTG recommendations that coating characteristics be verified by either EPA Method 24, "Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings," Appendix A-7 of 40 CFR Part 60 (Method 24), which is incorporated into the rule by reference, or the manufacturer's formulation data. If there is a disagreement between the manufacturer's formulation data and the results of a subsequent test (using Method 24), the test method results will prevail, unless a demonstration is made to the Department's satisfaction that the manufacturer's formulation data are correct.

For all the MMPPC operations categories the proposed rules require the application methods that the MMPPC CTG recommends as control limitation requirements. The use of these CTG-recommended application methods has a significant effect on the amount of coating used and results in lower VOC emissions than other methods. The proposed application requirements are pleasure craft surface coating operations proposed at N.J.A.C. 7:27-16.15(b)2; metal parts and products surface coating operations at proposed N.J.A.C. 7:27-16.15(c)2; plastic parts surface coating operations at proposed N.J.A.C. 7:27-16.15(d)2; automotive/transportation and business machine plastic parts and products surface coating operations at proposed N.J.A.C. 7:27-16.15(e)2; and motor vehicle material surface coating operations at proposed N.J.A.C. 7:27-16.15(f)2.

Proposed N.J.A.C. 7:27-16.15(g) follows the MMPPC CTG recommendations for best management practices for surface coating operations, including cleaning, that must be implemented by those facilities subject to proposed N.J.A.C. 7:27-16.15(a)1.

Recordkeeping and testing requirements at proposed N.J.A.C. 7:27-16.15(h) through (n) will enable the Department to monitor and verify compliance with the rules. The MMPPC CTG does not address recordkeeping. Proposed monitoring and recordkeeping procedures for MMPPC operations are consistent with the Department's requirements for similar facilities and operations.

Proposed amended N.J.A.C. 7:27A-3.10(m)16 contains penalties for violations of the proposed new requirements for MMPPC operations. The proposed penalties for violations of the proposed new VOC limits and control measures at N.J.A.C. 7:27-16.15(b)1, (c)1, (d)1, (e)1, and (f)1 are consistent with those for violations of similar requirements in N.J.A.C. 7:27-16, such as the VOC limits at N.J.A.C. 7:27-16.7(c). The proposed penalties for violations of coating application techniques requirements at N.J.A.C. 7:27-16.15(b)2, (c)2, (d)2, (e)2, and (f)2 are based on existing penalties for violations of other coating application requirements in N.J.A.C. 7:27-16, such as those at N.J.A.C. 7:27-16.12(f). Similarly, the proposed penalty schedule for proposed new N.J.A.C. 7:27-16.15(g) is based on existing penalties for violations of other best management practices requirements in N.J.A.C. 7:27-16, such as those in existing N.J.A.C. 7:27-16.7(t). The Department based the penalties for violations of proposed new N.J.A.C. 7:27-16.15(h) through (n) on existing penalties for violations of other recordkeeping requirements in N.J.A.C. 7:27-16, such as those in existing N.J.A.C. 7:27-16.5(j) and 16.7(m). In addition, the Department proposes to designate these proposed new penalties as either minor or non-minor in

accordance with the Grace Period Law, N.J.S.A. 13:1D-125 through 133, consistent with its designation of similar penalty provisions in N.J.A.C. 7:27A-3.10(m).

Industrial Cleaning Solvents

Industrial cleaning solvents remove a variety of contaminants, such as adhesives, inks, paint, dirt, soil, oil, and grease. Contaminants are removed from parts, products, tools, machinery, equipment, vessels, floors, walls, and other production-related work areas for a variety of reasons including safety, operability, and prevention of product contamination. Types of cleaning activities include flushing, purging, spraying, and wiping actions. The three general categories of cleanliness are cleaning as a step in the manufacture of products; cleaning of process equipment; and cleaning before maintenance. Because a portion of all solvents evaporate during use, such solvent-based cleaning materials result in emissions of large amounts of VOC. The Department has identified approximately 30 existing facilities that could be subject to the proposed rules for industrial cleaning solvents.

In 1994, the EPA completed a study of industrial cleaning solvents used in cleaning operations carried out within six focus industries (automotive, electrical equipment, magnetic tape, furniture, packaging, and photographic supplies) to evaluate sources of evaporative emissions from VOC solvents used as cleaning materials and issued an ACT document for industrial cleaning solvents. The EPA relied on the 1994 study, the 1994 ACT document, and existing state VOC emission reduction approaches, such as those by California in drafting the CTG for this group of sources.

The EPA intended this CTG to cover all industrial cleaning operations and believed that these nine cleaning categories would encompass all these operations. However, the EPA

recognized that some industries with solvent cleaning operations are covered by an existing CTG or are likely to be covered by a CTG that is being developed or may be the subject of a future CTG. Because CTGs often recommend control approaches for a particular industry, like printing, and those approaches achieve important VOC emission reductions, the EPA created a list of 15 industries that are or are likely to be covered by a CTG and that it recommends states consider excluding from the applicability of their industrial cleaning solvents rules. (See ICS CTG at page 8.) The EPA also recommended excluding an additional seven categories that the Bay Area Air Quality Management District specifically exempts in its rules at Bay Area 8-4-116. (See ICS CTG, page 9.) Finally, the EPA recommended excluding 18 categories that are subject to specific rules and exemptions under Bay Area 8-4-117, some of which duplicate categories already covered by Bay Area 8-4-116 or the ICS CTG. (See ICS CTG, page 9.) With a number of exceptions, as described more fully below, the Department proposes to exclude the categories as the EPA recommends.

The ICS CTG recommends states adopt three control measures: a VOC content and control limit; an alternative composite vapor pressure limit; and best management practices, referred to in this CTG as work practices. The recommended VOC content limit is a generally applicable VOC content limit of 50 g/l, unless emissions are controlled by an emission control system with an overall control efficiency of at least 85 percent. In addition to the recommended VOC content and control limits, the CTG recommends, as an alternate method of compliance, the inclusion of a composite vapor pressure limit of eight millimeters of mercury (mmHg) at 20 degrees Celsius. The recommended best management practices are the same as those recommended in the other CTGs, and are designed to help reduce VOC emissions from the use, handling, storage, and disposal of cleaning solvents and shop towels.

Proposed Rules Related to ICS CTG

The Department proposes to amend N.J.A.C. 7:27-16.1 to define terms in the proposed new ICS rules, based on the same criteria it used in defining terms related to the other CTGs. The Department derived the following proposed terms from their descriptions in Appendix C of the ICS CTG: "equipment cleaning," "floor cleaning," "industrial cleaning," "large manufactured components cleaning," "line cleaning," "parts cleaning," "small manufactured components cleaning," "spray booth cleaning," "spray gun cleaning," and "unit operations." Proposed "industrial cleaning" expressly excludes janitorial cleaning, consistent with the statement on page 4 of the ICS CTG that janitorial supplies used for cleaning offices, bathrooms, or other similar areas are not addressed by the ICS CTG. Proposed "industrial cleaning solvent" is derived from its descriptions in Section II, Background and Overview (page 2) of the ICS CTG. Proposed "miscellaneous industrial adhesives" is derived from the "Control Techniques Guidelines for Miscellaneous Industrial Adhesives," EPA-453/R-08-005, September, 2008.

The Department proposes to use Connecticut's definition for "digital printing" in its regulations at R.C.S.A. Section 22a-174-20(ii)(3)(B). Connecticut's definition is consistent with the generally accepted meaning associated with this term. In addition, the EPA has approved the revision of Connecticut's SIP that the promulgation of these rules represent, finding that Connecticut's ICS rules at Section 22a-174-20(ii) meet RACT for this CTG category, providing additional support for the appropriateness of New Jersey promulgating a definition consistent with or identical to the defnition used by Connecticut. (See 79 FR 32873, June 9, 2014.) The proposed definition of "digital printing" is also consistent with Maryland's definition of "digital imaging" at COMAR 26.11.19.18A, "Control of Volatile Organic Compound Emissions from

Screen Printing and Digital Imaging"; by BAAQMD at BAAQMD Regulation 8 Organic Compounds, Rule 20, Graphic Arts Printing and Coating Operations, 8-20-234; and by New Hampshire, in its rules at Code of Administrative Rules Chapter Env-A 1200 "Volatile Organic Compounds (VOCs) Reasonably Available Control Technology (RACT)," Section Env-A 1202.52. Given the widespread use of this definition and the approval by the EPA of Connecticut's SIP, the Department has concluded that this definition has become standard and accurately reflects its use in the ICS CTG and in commerce.

The Department also proposes to use Connecticut's definition for "janitorial cleaning," R.C.S.A. Section 22a-174-20(ii)(1)(E), which is consistent with the generally accepted definition of this term.

The Department proposes to use BAAQMD's definitions for the following terms (BAAQMD regulation citations indicated parenthetically): "aerospace coating" (Section 8-29-201), "electrical component" and "electronic component" (Section 8-4-222), "flexible magnetic data storage disc" (Section 8-38-201), "flexible packaging materials" (Section 8-12-203), "marine vessels" (Section 8-43-101), "medical device" (Section 8-4-224), "medical device and pharmaceutical manufacturing operations" (Section 8-4-225), "metal container or closure coating" (Section 8-11-209), "navigational aids" (Section 8-43-210), "pharmaceutical products" (Section 8-4-226), "precision optics" (Section 8-4-223), "rigid magnetic data storage disc" (Section 8-38-202), "semiconductor wafer fabrication operation" (Section 8-30-210), and "stripping" (Section 8-16-225). The Department proposes these BAAQMD definitions based on the CTG recommendataion to exempt categories of cleaning operations that are specifically excluded from applicability in BAAQMD Regulation 8 Rule 4.

Proposed "shipbuilding and repair coating" is derived from the Federal definition of "s*hipbuilding and ship repair operations," which is* any building, repair, repainting, converting, or alteration of ships. (40 CFR Part 63, Subpart II, National Emission Standards for Ship Building and Repair (Surface Coating).)

In the absence of any Federal or state definition, the Department derived proposed "numismatic die" from information found on web pages related to coin manufacturing of the American Numismatic Society Introduction to Numismatic Terms and Methods (http://numismatics.org/html/dpubs/termsandmethods/). The proposed definition is consistent with common and industry-wide understanding of this term. The Department also proposes defining the following terms as they are defined elsewhere in its rules, as indicated parenthetically: "adhesive" (N.J.A.C. 7:27-26.1), "architectural coating" (N.J.A.C. 7:27-23.2), "automobile and light-duty truck assembly" (N.J.A.C. 7:27-16.1), and "research and development laboratory" (N.J.A.C. 7:27-22.1).

The Department proposes to regulate all nine types of cleaning unit operations listed in the ICS CTG by focusing on the VOC content and vapor pressure of the solvents used, and requiring best management practices. The proposed industrial cleaning rules at N.J.A.C. 7:27-16.24 apply to facilities that purchase more than 855 gallons of industrial cleaning solvent during a 12-month period, which is comparable to the CTG-recommended applicability threshold of the use of more than 15 pounds per day. The Department has determined that basing applicability on purchase rather than use would make it easier for facilities to measure and verify compliance, for the reasons discussed above with regard to the other proposed CTG-related rules.

The industrial cleaning rules do not apply to the 35 operation categories listed at proposed new N.J.A.C. 7:27-16.24(b). The exclusion of these categories is consistent with the

recommendations of the ICS CTG, except with regard to screen printing. The Department is not following the ICS CTG recommendation to exempt screen printing, which is considered to be a graphic arts printing and coating operation, a category that is otherwise excluded. Stakeholders advise that screen printing has been identified as an activity for which a VOC content limit could be developed. In fact, Connecticut's rules contain an as-applied VOC content limit of 500 g/l for cleaning solvent used to clean screen printing equipment. (See R.C.S.A. 22a-174-20(ii)(3)(C)). The EPA suggested that the Department consult this regulation when developing the proposed rule.

Proposed new N.J.A.C. 7:27-16.24(c) provides the three CTG-recommended VOC compliance options. Table 24A sets the VOC content limit for cleaning operations at 50 g/l, except for cleaning of equipment used in screen printing, which has a limit of 500 g/l (the same as in Connecticut's rules). The other compliance options are those recommended by the CTG: complying with a composite vapor limit or controlling the VOC cleaning emissions with an air pollution control device. Regulated sources must implement best management practices, such as covering a container when not in use, and storing VOC-containing cleaning materials and used shop towels in closed containers.

Based on comments by industrial stakeholders and the experience of other states, the Department proposes at N.J.A.C. 7:27-16.24(c) to exempt the cleaning of equipment used to manufacture adhesives, surface coating formulations, inks, or resins from VOC control limits. The Department has determined that the CTG-recommended limits are too stringent, and would result in ineffective cleaning, increase the use of more flammable, exempt organics, such as acetone, and result in cross-contamination of manufactured product, since acetone is incompatible with the manufacture of water-reducible coatings. Proposed N.J.A.C. 7:27-

16.24(c) also exempts the solvent used for the cleaning of digital printing operations from the VOC content limit since very little solvent is used to clean the parts. Connecticut also took this approach in its rules at R.C.S.A. 22a-174-20(*ii*)(3)(C). However, all these exempted facilities remain subject to best management practices for industrial cleaning at proposed N.J.A.C. 7:27-16.24(d). These are essentially the same as the best management practices proposed elsewhere in this rulemaking and discussed above.

To facilitate monitoring and verifying compliance with the new VOC limits and best management practices for industrial cleaning solvents, the Department is proposing recordkeeping requirements at N.J.A.C. 7:27-16.24(e) through (h). The ICS CTG does not address recordkeeping. The proposed monitoring and recordkeeping procedures are consistent with requirements for similar facilities elsewhere in the Department's rules.

The proposed penalties at N.J.A.C. 7:27a-3.10(m)16 for violations of proposed new N.J.A.C. 7:27-16.24(c) are consistent with those for violations of similar requirements in N.J.A.C. 7:27-16, such as VOC limits at N.J.A.C. 7:27-16.7(c). Similarly, the proposed penalty schedule for proposed new N.J.A.C. 7:27-16.24(d) is based on existing penalties for violations of other best management practices requirements in N.J.A.C. 7:27-16, such as those in existing N.J.A.C. 7:27-16.7(t). The proposed penalty schedule for proposed new N.J.A.C. 7:27-16.24(e) through (h) is based on existing penalties for violations of other recordkeeping requirements, such as in existing N.J.A.C. 7:27-16.5(j) and 16.7(m). In addition, the Department proposes to designate these proposed new penalties as either minor or non-minor in accordance with the Grace Period Law, N.J.S.A. 13:1D-125 through 133, consistent with its designation of similar penalty provisions in N.J.A.C. 7:27A-3.10(m).

NO_X RACT

Compressor turbines and compressor engines

The Department identified simple cycle combustion turbines combusting natural gas and compressing gaseous fuel at major NO_x facilities (compressor turbines) and stationary reciprocating engines combusting natural gas and compressing gaseous fuel at major NO_x facilities (compressor engines) as potential source categories for NO_x emission control strategies. As explained above, in New Jersey, NO_x RACT requirements apply to facilities that emit or have a potential to emit at least 25 tpy of NO_x. The Department committed to establishing NO_x emissions limits for these sources in New Jersey's 2015 RACT SIP revision (available at www.nj.gov/dep/baqp/sip/siprevs.htm).

Compressor turbines and compressor engines drive mechanical devices (compressors) designed to increase the pressure of the gaseous fuels being transported through a pipeline. In New Jersey, three natural gas pipeline companies (Transcontinental Gas Pipeline, Tennessee Gas Pipeline, and Texas Eastern/Spectra Energy Transmission) operate compressor turbines and compressor engines. Natural gas transmission pipeline systems use compressors at gas compressor stations to maintain system flow and overcome pressure losses due to the movement of the natural gas, and to facilitate the movement of the natural gas through a pipeline. These turbines and engines do not generate electricity. Compressor engines include two-stroke lean-burn, four-stroke lean-burn, and four-stroke rich-burn engines. Operation of this equipment tends to increase during periods of high natural gas demand, such as during winter, when there is a high heating fuel demand, or on high electric demand days, when natural gas fired electric generating units consume a significant amount of natural gas. The compressor engines and compressor turbines are significant sources of NO_x emissions and are permitted to operate

continuously. Because several of these units were installed more than 45 years ago, they currently operate above the RACT standards discussed below. In the years since these units were installed, NO_x control technologies have advanced to the point where installing such technologies would allow these older units to meet current RACT standards.

New Jersey addressed all major NO_x source categories other than compressor turbines and certain compressor engines in the previous ozone SIPs. In developing an NO_x control strategy for these compressor turbines and engines, the Department reviewed the efforts of the EPA and the work of various states and regional organizations, as well as data collected from stack emissions in New Jersey. In 1993, the EPA issued its "Alternative Control Techniques NO_x Emissions from Stationary Gas Turbines" (Turbines ACT). The Turbines ACT is available at www.epa.gov/ttn/catc/dir1/gasturb.pdf. Also, in 1993, the EPA issued a document addressing engines entitled, "NO_x Emissions from Stationary Reciprocating Internal Combustion Engines" (Engine ACT). The Engine ACT is available at http://nepis.epa.gov/Adobe/PDF/2000IJLJ.PDF. While these ACTs do not include recommended emission limits, they do provide useful (albeit somewhat outdated) information on NO_x emission control technologies. In 2010, the Ozone Transport Commission (OTC), the multistate organization comprised of the OTR states, identified compressor turbines and compressor engines as potential categories for emission control strategies. In 2014, OTC issued "Model Rule for Control of NO_x Emissions From Natural Gas Pipeline Compressor Fuel-Fired Prime Movers" (OTC Model Rule) providing NO_x emissions limits. The Department reviewed the OTC recommended model rule limits, Federal rule limits, as well as limits of other states that have a significant number of compressor turbines and engines.

Table A below compares the Department's proposed NO_x emission limits for compressor turbines with the OTC recommendations, and the NO_x emission limits adopted by other states and prosed to the EPA as Federally enforceable under the states' SIPs. For purposes of comparison, all existing compressor turbines in New Jersey are rated at more than 5,000 hp. Table B below provides a similar comparison for compressor engines.

TABLE A

COMPRESSOR TURBINES - PROPOSED NO_x EMISSION LIMITS COMPARED TO OTHER JURISDICTIONS' NO_x EMISSION LIMITS

Government or Regional Organization	NO_x Emission Limits	Notes
New Jersey	42 ppmvd at 15 percent O_2	Proposed N.J.A.C. 7:27-19.5(l) for a simple cycle combustion turbine.
Ozone Transport Commission	25 ppmvd at 15 percent O_2 or 80 percent reduction from	Section 4.4 of the OTC Model Rule for a combustion turbine rated at 5,000 hp or more (www.otcair.org).

	uncontrolled emissions, whichever emission rate is greater	
Texas	42 ppmvd at 15 percent O_2	Texas Administrative Code Rule 117.105(c) of Title 30, Part 1, Chapter 117, Subchapter B, Division 1 for a combustion turbine rated at 10 megawatts or more (equivalent to 13,410 hp).
Pennsylvania	42 ppmvd at 15 percent O_2	Pennsylvania Administrative Code Rule 129.97 of Title 25, Part 1, Subpart C, Article III for simple cycle or regenerative cycle combustion turbine rated at 6,000 hp or more.

TABLE B

COMPRESSOR ENGINES - PROPOSED NO_x EMISSION LIMITS COMPARED TO OTHER JURISDICTIONS' NO_x EMISSION LIMITS

Government or Regional Organization	NO_x Emission Limits for two-stroke engines	NO_x Emission Limits for four-stroke engines	Notes
New Jersey	3.0 grams/bhp-hr	2.0 grams/bhp-hr	Proposed N.J.A.C. 7:27-19.8. For engines capable of producing an output of 200 bhp or more but less than 500 bhp. Engines capable of producing an output of 500 bhp or more are regulated at N.J.A.C. 7:27-19.8(a) and (b).
Ozone Transport Commission	3.0 grams/bhp-hr or 80 percent reduction from uncontrolled emissions, whichever	2.0 grams/bhp-hr or 90 percent reduction from uncontrolled emissions, whichever	Sections 4.1 through 4.4 of the OTC Model Rule for engine size 200 bhp or more but less than 500 bhp (www.otcair.org).

	emission rate is greater	emission rate is greater	
Texas	3.0 grams/bhp-hr	2.0 grams/bhp-hr	Texas Administrative Code Rules 117.105(d) and 117.105(e) of Title 30, Part 1, Chapter 117, Subchapter B, Division 1 for engine size 300 bhp or more.
Pennsylvania	3.0 grams/bhp-hr	2.0 grams/bhp-hr	Pennsylvania Administrative Code Rule 129.97 of Title 25, Part 1, Subpart C, Article III for engine size 500 bhp or more.[4]

Available NO_x control technologies for compressor turbines include water or steam injection (WI), dry low NO_x burners (DLNB), and selective catalytic reduction (SCR). In December 2000, the Northeast States for Coordinated Air Use Management (NESCAUM)

reviewed these NO_x control technologies and issued a report (2000 NESCAUM report, available at www.nescaum.org/documents/nox-2000.pdf, see Section II.B). In 2012, the OTC developed a technical document, entitled "Technical Information – Oil and Gas Sector Significant Stationary Sources of NO_x Emissions – Final - October 17, 2012," (2012 OTC Final Technical Document), available at www.otcair.org.

In the 2012 OTC Final Technical Document, the OTC quantified the reductions that could be obtained by using these technologies on the combustion devices utilized in the Northeast and mid-Atlantic states. The OTC estimated a potential NO_x reduction of 40 percent by using water injection, a potential NO_x reduction of 60 percent by using DLNB, and a potential NO_x reduction of 95 percent by using SCR. These reductions would allow this equipment to meet a 42 ppmvd at 15 percent O_2 emission limit.

Available NO_x control technologies for compressor engines include SCR, improved mixing (high pressure fuel injection), and pre-combustion chamber ignition system. The 2000 NESCAUM report provides details on these technologies. See Section II.C. of the 2000 NESCAUM report. In the 2012 OTC Final Technical Document, the OTC quantified the reductions that could be obtained by using these technologies on the combustion devices utilized in the Northeast and mid-Atlantic states. The OTC estimated a potential NO_x reduction of up to 95 percent by using SCR. The OTC also estimated a potential NO_x reduction of up to 90 percent by using improved mixing (high pressure fuel injection), and a potential NO_x reduction of up to 90 percent by using a pre-combustion chamber ignition system. These reductions would allow this equipment to meet the proposed NO_x emission limits.

Proposed Rules Related to Compressor Turbines and Compressor Engines

Proposed new N.J.A.C. 7:27-19.2(b)13 and 14 add compressor turbines and compressor engines, 200 to 500 bhp, to the list of types of equipment that are subject to the NO_x emissions limits in N.J.A.C. 7:27-19. The proposed new NO_x RACT requirements for compressor turbines and compressor engines are at N.J.A.C. 7:27-19.5 and 19.8, respectively, and are consistent with the Department's commitment in the 2015 RACT SIP revision to establish such requirements.

At proposed new N.J.A.C. 7:27-19.5(l), the Department proposes a single NO_x emission limit of 42 ppmvd at 15 percent oxygen for all compressor turbines. The proposed NO_x emission limits for compressor engines at proposed new N.J.A.C. 7:27-19.8(g) and (h) are 3.0 grams per bhp-hr for two-stroke lean-burn stationary reciprocating engines capable of producing an output of 200 bhp or more but less than 500 bhp, and 2.0 grams per bhp-hr for four-stroke lean-burn or four-stroke rich-burn stationary reciprocating engine capable of producing an output of 200 bhp or more but less than 500 bhp. The proposed emission limit will be less resource-intensive than requiring case-by-case analyses for affected facilities, and would also comply with the RACT re-evaluation requirements, discussed above.

There are two existing compressor turbines in New Jersey that are not subject to the existing provisions of N.J.A.C. 7:27-19.5 that would be affected by the proposed rules. Both compressor turbines are rated at more than 5000 hp. The owner or operator of a compressor turbine in New Jersey would be able to comply with the proposed new limit by using commercially available NO_x reduction technologies. There are three existing compressor engines in New Jersey that are not subject to the existing provisions of N.J.A.C. 7:27-19.8 but would be subject to the proposed rules. Each of the three compressor engines is rated more than 200 bhp and less than 500 bhp. The owner or operator of a compressor engine in New Jersey

would be able to comply with a 3.0 grams/bhp-hr emission limit for lean-burn engines by using commercially available NO_x reduction technologies.

In order to allow sufficient time for facilities to install NO_x control technology and achieve maximum NO_x emissions reduction, the Department proposes at N.J.A.C. 7:27-19.5(l) and 19.8(g) and (h) that owners and operators of compressor turbines and compressor engines be allowed to achieve compliance within two years from the date the adopted rule is published in the New Jersey Register (the effective date of the amendment). In addition, compliance with the proposed NO_x emission limits can be demonstrated using emissions averaging, as provided at existing N.J.A.C. 7:27-19.6.

The proposed penalties at N.J.A.C. 7:27A-3.10(m)19 for violations of the proposed NO_x emission limits for compressor turbines at N.J.A.C. 7:27-19.5(l), are similar to and consistent with existing penalties for violations of similar requirements in N.J.A.C. 7:27-19, specifically the penalties for violation of the NO_x emission limits at N.J.A.C. 7:27-19.5(a), (d), (g), and (h). Similarly, the proposed new penalties at N.J.A.C. 7:27A-3.10(m)19 for violations of the proposed new NO_x emission limits for compressor engines at N.J.A.C. 7:27-19.8(g) and (h), (both of which address engines with outputs of 200 or more bhp, but less than 500 bhp) are consistent with existing penalties for violations of similar engine requirements at N.J.A.C. 7:27-19.8(a), (b), (c), or (e).

N.J.A.C. 7:27-19.8(a), (b), and (c) apply to engines with an output of 500 or more bhp. Penalties for violations of these provisions are identical for all three engine types and are based on the size of an engine; one category of penalties covers engines with an output of greater than 1,000 bhp, and the other category covers engines with an output of 1,000 bhp or less. The second category essentially covers engines of an output from 500 to 1,000 bhp, since engines

less than 500 bhp are not subject to N.J.A.C. 7:27-19.8. Consequently, the Department decided to consider penalties in this engine size category as the upper bounds of potential penalty amounts for violations of N.J.A.C. 7:27-19.8(g) and (h), since the upper bound of the applicability range of N.J.A.C. 7:27-19.8(g) and (h) is 500 bhp. With upper and lower bounds established for proposed penalties for violations of N.J.A.C. 7:27-19.8(g) and (h), the Department proposes to use the midpoints of each of these penalty amount ranges for the new penalties.

The Department proposes to amend the penalty table at N.J.A.C. 7:27A-3.10(m)19 to correct an error. The existing rule refers to N.J.A.C. 7:27-19.5(l), which does not exist. The correct cite is to N.J.A.C. 7:27-19.5(k).

Social Impact

The proposed new rules and amendments are primarily designed to reduce VOCs and NO_x emissions, which will help the State make progress towards attainment of the 75 ppb 2008 eight-hour ozone NAAQS, and will also reduce $PM_{2.5}$ emissions. The Department anticipates that the proposed new rules and amendments will have a positive social impact, primarily from improved public health and reduced medical costs. The proposed rules will result in the reduction of ozone, VOCs, NO_x, and $PM_{2.5}$.

Ground-level ozone is a health concern in New Jersey. Ozone exposure can cause irritation of the lungs, which can make the lungs more vulnerable to diseases, such as pneumonia and bronchitis, increase incidents of asthma and susceptibility to respiratory infections, reduce lung function, reduce an individual's ability to exercise, and aggravate chronic lung diseases. Increased ozone concentrations severely affect the quality of life for susceptible populations –

small children, the elderly, and asthmatics – and present health risks for the public in general. Exposure to ozone for several hours at relatively low concentrations significantly reduces lung function and induces respiratory inflammation in normal, healthy people during exercise. This decrease in lung function is generally accompanied by symptoms, such as chest pain, coughing, sneezing, and pulmonary congestion. Research strongly suggests that, in addition to exacerbating existing asthma, ozone also causes asthma in children. Long-term exposure may lead to scarring of lung tissue and lowered lung efficiency. Repeated exposure may cause permanent lung damage. When ozone reaches unhealthy levels, children, people who are active outdoors, and people with respiratory disease are most at risk.

The Department estimates that attaining the Federal 85 ppb 1997 eight-hour ozone NAAQS in New Jersey would eliminate about 40,000 asthma attacks each year and substantially reduce hospital admissions and emergency room visits among children and adults with asthma and other respiratory diseases. The Department also estimates that ozone exposure results in increased mortality in New Jersey. As such, implementing these proposed RACT rules will not only yield greater air quality benefit, but also will save lives and money and provide better living conditions for the people of New Jersey, especially the susceptible populations.

Reducing long-term exposure to low concentrations of VOCs will also have beneficial health effects. The adverse health effects of VOCs may include elevation of serum enzyme levels, mild cellular changes, and changes in lipid metabolism. Acute effects include eye irritation and watering, nose irritation, throat irritation, headaches, nausea/vomiting, dizziness, and asthma exacerbation. Chronic effects include cancer and damages to the liver, kidney, and central nervous system.

NO_x, too, is a potential health hazard. Long-term exposure to low concentrations of NO_x,

a component of NO_x, causes adverse health effects. Elevated levels of NO_x cause damage to the mechanisms that protect the human respiratory tract and can increase a person's susceptibility to, and the severity of, respiratory infections and asthma. Long-term exposure to high levels of NO_x can cause chronic lung disease. Other health effects from exposure to NO_x, include shortness of breath and chest pains.

In addition to contributing to the formation of ozone, NO_x, and to a lesser extent VOCs, contribute to the formation of $PM_{2.5}$, either through condensation or complex reactions with other compounds in the atmosphere. Both NO_x and VOCs are precursors to $PM_{2.5}$ formation. $PM_{2.5}$ is either "direct" or "formed." Direct $PM_{2.5}$ are particles emitted into the atmosphere from the sources, such as diesel-powered engines, forest fires, cars, trucks, buses, and burning of wood. Formed $PM_{2.5}$ particles are produced from the physical and chemical transformation of other vaporous or gaseous pollutants emitted from power plants, industries, and automobiles.

The proposed rules will help the State remain in attainment of the $PM_{2.5}$ NAAQS. The presence of $PM_{2.5}$ in the ambient air in New Jersey is a public health concern. Fine particles are inhaled deep into the lungs, where they become lodged and interfere with lung function. A variety of chemicals, including some that are toxic or carcinogenic, may cling to the particles, thereby increasing the danger to public health and wildlife. Fine particulate matter is associated with a number of adverse human health effects, which include premature death, aggravation of respiratory and cardiovascular disease, changes in lung function, and increased respiratory symptoms, changes in lung tissues and structure, and altered respiratory defense mechanisms. This aggravation of respiratory and cardiovascular disease from $PM_{2.5}$ results in increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days. Individuals particularly sensitive to $PM_{2.5}$ exposure include older adults, people

with heart and lung disease, and children. A reduction of the $PM_{2.5}$ concentrations in New Jersey's ambient air will produce a corresponding reduction of respiratory problems.

Economic Impact

The Department anticipates that the proposed new rules and amendments will have both positive and negative economic impacts. Some facilities will incur costs, and others will receive an economic benefit. The specific anticipated economic impact for each source category follows.

VOC RACT

Paper, Film, and Foil Coatings

The proposed best management practices for cleaning materials at N.J.A.C. 7:27-16.7(u) apply to facilities that emit 15 or more pounds of VOCs per day. The Department estimates that 13 existing facilities meet this threshold and will be required to implement the proposed best management practices. The Department anticipates that the proposed best management practices will result in a net cost savings for facilities. Implementing these best management practices reduces the amount of cleaning materials used by reducing the amount that is evaporated, spilled, or wasted. The exact savings from the best management practices depend on the individual facility, and its existing practices, as discussed in connection with the proposed industrial cleaning solvents rules below.

Fiberglass Boat Manufacturing Materials

The proposed new rules and amendments at N.J.A.C. 7:27-16.14 implement the recommendations of the EPA, as published in the FBMM CTG. The VOC content and emission rate limitations in the FBMM CTG are based on the 2001 Boat Manufacturing NESHAP.

Therefore, the Department's estimate of the cost of implementing the CTG-recommended requirements is based on the data provided by the EPA when the 2001 standards were promulgated.

When determining the economic impact of the 2001 Boat Manufacturing NESHAP, the EPA estimated a cost of $3,600 per ton of HAPs reduced, in 2001 dollars, or approximately $4,934 in 2016 dollars. Styrene and methyl methacrylate (MMA) are the primary HAPs that are reduced as a result of the 2001 Boat Manufacturing NESHAP. Also, styrene and MMA account for nearly all of the VOCs emitted from the processes addressed by the recommendations in this CTG. Therefore, the EPA expected that the costs to reduce HAPs and VOCs would be nearly equal.

The EPA expects that the cost of reducing VOCs through the measures recommended in this CTG would be substantially lower than the cost of reducing HAPs through the 2001 Boat Manufacturing NESHAP for several reasons. First, the 2001 Boat Manufacturing NESHAP is now fully implemented at major sources of HAPs, and resin, gel coat, and cleaning materials that are compliant with the 2001 Boat Manufacturing NESHAP are readily available to all sizes of facilities. Second, the industry has experienced a shift to non-atomized resin application methods that are required to comply with the 2001 Boat Manufacturing NESHAP. This shift has occurred at all sizes of facilities because of the productivity and economic benefits of using non-atomizing methods over conventional atomizing methods. Therefore, with respect to those facilities that are not subject to the 2001 Boat Manufacturing NESHAP, the EPA expects that most, if not all, are already using the materials and methods recommended by this CTG. The EPA, therefore, expects that these facilities would incur little, if any, increased cost if required by a state RACT rule to implement the approaches recommended in this CTG. Also, facilities

that are presently subject to the 2001 Boat Manufacturing NESHAP will not incur any additional costs since they are already in compliance with the CTG VOC limits. The four existing New Jersey facilities that would be subject to the proposed amendments all have confirmed EPA's expectation. They have stated that they are already meeting the proposed requirements, and that the costs of the VOC control limitations will be minimal.

The proposed best management practices should result in net costs savings, since these practices reduce the amount of cleaning materials used by reducing the amount that evaporates and is wasted. The best management practices for resin and gel coat mixing containers should also result in a net cost savings since these practices would also decrease the amount of raw materials that evaporate. The exact cost savings from the best management practices will depend on the facility and its current practices, as discussed in connection with the proposed industrial cleaning solvents rules below.

Miscellaneous Metal and Plastic Parts Coatings

The proposed emission standards and best management practices at N.J.A.C. 7:27-16.15 are based on the EPA's recommendations in the MMPPC CTG document. The Department estimates that 23 coating lines at nine existing facilities would either have to change coating formulation or install air pollution controls to meet the proposed VOC standards, achieving as much as 28.5 tons per year of VOC emission reductions.

In the MMPPC CTG, the EPA estimates the average cost to implement the proposed VOC limits to be $10,500 ($13,494 in 2016 dollars) per facility, for a cost of $1,758 per ton of VOC reduced ($2,167 in 2016 dollars). The Department believes that the proposed best management practices will result in a net cost savings. Implementing these practices reduces the amount of cleaning materials used by reducing the amount that evaporates and is wasted.

Similarly, use of the specified coating application methods will result in net cost savings. Increasing the transfer efficiency of coating application to reduce VOC emissions will also reduce coating consumption and costs. However, these cost savings cannot be accurately estimated and will vary from facility to facility, depending on the type of parts being coated, and practices currently employed at each facility, as discussed in connection with the proposed industrial cleaning solvents rules below.

Industrial Cleaning Solvents

The proposed emissions standards and best management practices for industrial cleaning solvents at N.J.A.C. 7:27-16.24 are based on the recommendations in the ICS CTG. According to Appendix D of the ICS CTG, 32 existing facilities in New Jersey exceeded the ICS CTG's applicability criteria of 15 pounds facility-wide of VOC emissions per day before controls. Since the Department's proposed applicability threshold is based on annual usage and not the daily VOC emission level, the Department anticipates that not all of these 32 existing facilities will in fact be subject to the proposed new rules, as several facilities may have high usage on several days a year, yet would not exceed the annual applicability threshold.

The EPA based its estimate of the compliance costs for the measures recommended in the ICS CTG on studies by the BAAQMD. According to the CTG, costs associated with a switch over to aqueous parts cleaners (cleaning systems or washers) include the initial cost of equipment, solvent costs, filters, electricity, and waste disposal costs. Many of these costs are also incurred when operating higher-VOC solvent cleaners. A study on parts cleaners, for example, has shown typical annual costs for mineral spirits parts cleaners of $1,453 ($2,146 in 2016 dollars). Estimates on annual costs for aqueous parts cleaners, in comparison, range from $1,171 to $1,480 ($1,744 to $2,204 in 2016 dollars). Thus, facilities could face either a slight

increase in cleaning costs or realize a cost savings as a result of the switch over. Facilities may either incur minimal additional costs or realize a savings on a case by-case basis, depending primarily on how much they currently spend to operate the high VOC content solvent-based parts cleaners, the cost of organic solvent disposal, and the air emission fees levied for VOC emissions. A BAAQMD study shows that the cost-effectiveness for meeting the 50 g/l VOC cleaning material limit for a parts cleaner at $1,832 per megagram (Mg), or $1,664 per ton ($2,245 per ton in 2016 dollars). According to the CTG, this represents the annual cost of compliance (industry wide) for parts cleaners.

In another study, the EPA determined that replacing high VOC content cleaning materials with low VOC water-based cleaning materials for the other cleaning (unit) operations (for example, cleaning of large manufactured surfaces, tank cleaning, and gun cleaning) would result in an estimated cost savings of $1,460 per Mg, or $1,327 per ton ($1,598 per ton in 2016 dollars). For this calculation, the EPA considered only the differences in cleaning material cost and waste disposal cost. The savings are a result of the lower cost of aqueous cleaners, which offset the increase in waste disposal cost for aqueous cleaners. The proposed best management practices should result in net costs savings since these practices reduce the amount of cleaning materials used by reducing the amount that evaporates and is wasted.

As discussed above, the Department is proposing the same or similar best management practices for three other source categories: cleaning materials and operations for paper, film, and foil coatings; miscellaneous metal and plastic parts; and fiberglass boat manufacturing materials, based on EPA recommendations for these VOC source categories. The implementation of the best management practices would reduce the amount of VOC evaporation. One best management practice is to clean up immediately after any VOC coating or thinner is

spilled. Cleaning up spills immediately, as opposed to waiting, would lower the amount of VOC that evaporates. However, since the number and extent of spills cannot be accurately predicted, the exact cost benefit of preventing this additional evaporation cannot be accurately estimated. Similarly, storing coating or thinner in a closed container and conveying coating or thinner in a closed container or pipe would reduce VOC evaporation. Again, it is difficult to estimate or predict the cost savings that would result since evaporation rates vary based on the size of the opening of the container and the distance that the coating or thinner is conveyed.

NOx RACT

The proposed rules at N.J.A.C. 7:27-19.5(l) and 19.8(g) related to compressor turbines and compressor engines, respectively, will also have an economic impact. The OTC estimated the impact in the 2012 OTC Final Technical Document, summarized below.

Compressor Turbines

According to the Department's air permitting data, there are eight existing natural gas compressor turbines currently operating in New Jersey and ranging in capacities from 5,000 to 10,000 horsepower, as described in Table C below.

TABLE C

PERMITTED NATURAL GAS COMPRESSOR TURBINES IN NEW JERSEY

Facility	Number and capacity of turbines	Permitted NO_x emission concentrations (ppmvd at 15 percent O_2)

Plant ID 26239 Spectra Energy Hanover Compressor Station	Two turbines, 7,520 horsepower each One turbine, 8,412 hp	25
Plant ID 83405 Kinder Morgan Compressor Station 325	Two turbines, 9,785 hp each	25
Plant ID 26187 Spectra Energy Florham Park	One turbine, 6,500 hp	42
Plant ID 80337 Spectra Energy Lambertville	Two turbines, 5,800 hp each	172.5

Table C shows that the permitted NO_x emission concentrations from six existing turbines are at, or below, the proposed NO_x emission limit of 42 ppmdv at 15 percent O_2. These turbines are currently complying with this proposed NO_x emission limit and, thus, will not incur any additional cost to comply with the proposed new requirements. Table C also shows that the permitted NO_x emission concentrations from two existing turbines exceed the proposed NO_x emission limit. The owner or operator of the two existing turbines that are located at the Spectra Energy Lambertville compressor station, will be required to take action to comply with the proposed NO_x emission limit by reducing the permitted NO_x emission.

Commercially available NO_x control technologies include water or steam injection (WI), dry low NO_x burners (DLNB), and selective catalytic reduction (SCR). A facility using a WI or DLNB retrofit application is generally able to attain moderate levels of NO_x reduction. SCR retrofit is technically feasible and capable of achieving greater NO_x reductions. The 2012 OTC Final Technical Document provides estimates of the NO_x reductions for each available NO_x control technology. Assuming the two existing turbines are equipped with these technologies, an estimate of potential NO_x reductions and cost effectiveness in dollar per ton of NO_x removed for each turbine is provided in Table D below.

TABLE D

COST EFFECTIVENESS OF NO_x CONTROLS FOR NATURAL GAS COMPRESSOR TURBINES

Type of NO_x Controls	Effectiveness of NO_x Controls/ Estimated NO_x Reduction (percent)[1]	Current Allowable NO_x (tpy) from One Turbine[2]	Potential Reduction in NO_x (tpy) from One Turbine[3]	Range of Estimated Costs[1]	Range of Estimated Costs in Dollars Per Ton of NO_x Removed[4]
Water Injection	40	142	57	$398,000 to $1,481,000	$6,990 to $26,010

Low NO_x Burners	60	142	85	$260,000 to $1,094,000	$3,044 to $12,809
Selective Catalytic Reduction	90	142	128	$901,000 to $2,432,000	$7,033 to $18,983

[1] 2012 OTC Final Technical Document, Page 69.

[2] New Jersey Department of Environmental Protection Air Pollution Control Operating Permit (PI 80337/BOP140001), U1, OSO, Ref # 5 annual emission limit for NO_x in tons per year (tpy) for each turbine operating at the Texas Eastern Transmission LP, Lambertville Station.

[3] Potential reduction in annual NO_x emissions for a turbine using each technology is estimated by taking current allowable NO_x (142 tpy) and multiplying it with the effectiveness (percent control achieved) of that technology. It is assumed that permitted hours of operation would remain unchanged.

[4] Cost in dollar per ton is derived by dividing the estimated cost by the potential reduction.

NESCAUM also evaluated the cost effectiveness of NO_x controls for 7,000 horsepower gas turbines, and reported a range of $1,872 to $3,951 per ton of NO_x removed for DLNB retrofit, and a range of $2,061 to $3,395 per ton of NO_x removed for SCR. Additional details on technology costs are available in Section III of the NESCAUM report at www.nescaum.org/documents/nox-2000.pdf.

In addition, the owner or operator of the natural gas compressor turbines subject to the proposed NO_x emission limit will be able to use emissions averaging to demonstrate compliance with the proposed limit. Use of this alternative, which is already available under the existing NO_x RACT rules, could also reduce compliance costs.

Compressor Engines

According to the Department's air permitting data, there are 18 existing compressor engines, with capacities ranging from 440 to 2,310 brake horsepower (bhp), that operate in New Jersey, as described in Table E below.

TABLE E

PERMITTED NATURAL GAS COMPRESSOR ENGINES IN NEW JERSEY

Facility	Number and capacity of engines	Permitted emissions grams/bhp-hr
Plant ID 02626 Transcontinental LNG Plant 240	Two engines, 1,500 bhp each, rich-burn	1.5
	Three engines, 440 bhp each, lean-burn	11.0
Plant ID 35742 Transcontinental Williams Plant 505	Eight engines, 2,050 bhp each, lean-burn	2.5

Plant ID 41722 Texas Eastern Linden Plant	Three engines, 2,153 bhp each, lean-burn	2.5
Plant ID 80337 Texas Eastern Lambertville Plant	Two engines, 2,310 bhp each, lean-burn	1.0

Table E shows that the permitted NO_x emissions from two rich-burn engines comply with the NO_x emission limit of 1.5 grams/bhp-hr at existing N.J.A.C. 7:27-19.8(a) and the permitted NO_x emissions from 13 lean-burn engines comply with the NO_x emission limit of 2.5 grams/bhp-hr at existing N.J.A.C. 7:27-19.8(b). There will be no additional cost for the owner or operator of any of these 15 engines, each with a capacity of 500 bhp or greater, to comply with the proposed NO_x limit. Table E also shows that the permitted NO_x emissions from three engines are greater than the proposed NO_x emission limit of 3.0 grams/bhp-hr. These engines, which were installed in 1968, are located at the Transcontinental LNG Plant 240 compressor station. The owner or operator of these engines will be required to reduce the permitted NO_x emission in order to comply with the proposed NO_x limit.

The requisite NO_x emissions reduction could be achieved with commercially available NO_x control technologies. The 2012 OTC Final Technical Document provides NO_x control technologies and outlines potential NO_x reduction levels for two-stroke lean-burn spark-ignited engines. In this document, the OTC lists the following NO_x control efficiencies for the control

method indicated: 90 percent from layered combustion retrofits; 10 percent NO_x emission reduction from a high energy ignition system retrofit; 75 percent from intake air upgrade (for example, turbocharger) retrofit; 90 percent from improved mixing (high pressure fuel injection) retrofit; and 90 percent from pre-combustion chamber ignition system retrofit. The OTC further suggests that most two-stroke lean-burn spark-ignited reciprocating engines would be responsive to these five retrofits. The OTC also estimated potential reductions of up to 95 percent from use of SCR technology. Assuming the three engines are equipped with one or more combustion-related retrofits or SCRs, potential NO_x reductions for each engine and the cost per ton of NO_x removed are provided in Table F below.

TABLE F

COST EFFECTIVENESS OF NO_x CONTROLS FOR NATURAL GAS COMPRESSOR ENGINES

Type of NO_x Control	Effectiveness of NO_x Control/ Estimated NO_x Reduction (percent)[1]	Current Allowable NO_x (tpy) from One Engine[2]	Potential Reduction in NO_x (tpy) from One Engine[3]	Range of Estimated Costs[1]	Range of Estimated Costs in Dollars per Ton of NO_x Removed[4]

Retrofits/Layered Combustion (Improved mixing/ high pressure fuel injection and pre-combustion chamber ignition)	60 percent	47	28	$182,000 to $456,000	$6,477 to $16,228
	90 percent	47	42	$182,000 to $456,000	$4,319 to $10,821
Selective Catalytic Reduction	90 percent	47	42	$525,000 to $605,000	$12,458 to $14,357

[1] 2012 OTC Final Technical Document, Section 4.1.5, Page 29. It is assumed that the effectiveness of controls for engine size range 100 bhp to 250 bhp applies to all engines less than 500 bhp size, and the estimated cost of SCR for an engine that is less than 500 bhp would be half of the estimated cost of SCR for an engine that is 2,000 to 2,500 bhp.

[2] New Jersey Department of Environmental Protection Air Pollution Control Operating Permit (PI 02626/BOP090001), U4, OSO, Ref No. 5 annual emission limit for NO_x in tpy for an engine operating at Transcontinental Corp, LNG Carlstadt Station.

[3] The potential reduction in NO_x from an engine is estimated by multiplying the existing allowable NO_x limit (47 tpy) by the effectiveness (percent control) of the control technology. It is assumed that permitted hours of operation would remain unchanged.

[4] Cost in dollars per ton is derived by dividing the estimated cost by the potential reduction.

NESCAUM also evaluated cost effectiveness of NO_x controls for 2,500 bhp natural gas engines for NO_x reduction from 15 grams/bhp-hr to three grams/bhp-hr. NESCAUM reported a range of $240.00 to $460.00 per ton of NO_x removed for low emission combustion retrofit. For smaller engines, NESCAUM reported a capital cost of $200.00 per bhp to retrofit with low emission combustion technology. NESCAUM also evaluated the cost effectiveness of SCR for a 1,800 bhp gas fired engine for 90 percent NO_x reduction from 10.0 grams/bhp-hr baseline and provided a range of $533.00 to $3,508 per ton of NO_x removed. Additional details on technology costs are available in Section III of the NESCAUM report at www.nescaum.org/documents/nox-2000.pdf.

For the four-stroke lean-burn and four-stroke rich-burn engines, the cost per ton of NO_x removed would be in a similar range. The OTC-estimated range of NO_x reduction and NO_x control costs are similar to those shown in Table F above and are available in Sections 4.2.5 and 4.3.5 of the OTC document. According to the Department's air permitting data, four-stroke lean-burn and four-stroke rich-burn engines with a capacity of more than 500 bhp are complying with the NO_x emission limits specified in N.J.A.C. 7:27-19.8. There are no permitted four-stroke compressor engines in the size range of 200 to 500 bhp in New Jersey.

The regulatory impact analysis statement of the proposed Canadian multi-sector air pollutants regulations, jointly sponsored by the Canadian Environment and Health Departments, provides additional data on the costs of technologies that support the reasonableness of the proposed NO_x limits. (See Canada Gazette, Part II, Vol. 148, No. 23, June 7, 2014, also available at www.gazette.gc.ca/rp-pr/publications-eng.html.)

In addition to the retrofits and add-on controls, the owner or operator of the natural gas compressor engines subject to the proposed NO_x limit will be able to use emissions averaging to

demonstrate compliance with the proposed limit. Use of this alternative, which is already available under the existing NO_x RACT rules, could reduce compliance costs.

Environmental Impact

The Department anticipates that the proposed new rules and amendments will have a positive environmental impact. Ozone interferes with the ability of plants to produce and store food, which makes them more susceptible to disease, insects, other pollutants, and harsh weather. Ozone damages the leaves of trees and other plants, ruining the appearance of cities, national parks, and recreation areas. Ozone reduces crop and forest yields, which impacts annual crop production throughout the United States, resulting in significant losses, and injures native vegetation and ecosystems. Ground-level ozone also damages certain man-made materials, such as textile, fibers, dyes, and paints, requiring more frequent upkeep and repair.

Another benefit of the proposed new rules and amendments is the reduction of NO_x emissions, which contribute to the adverse environmental impacts from acid rain. Acid rain causes damage to forests, soil, and aquatic ecosystems; damage to infrastructure and human health; and reduces visibility. In addition to the formation of acid rain, NO_x condense into an aerosol component of $PM_{2.5}$.

To a lesser extent, VOCs also contribute to the formation of $PM_{2.5}$. Reduction in fine particulate matter in New Jersey would have a positive environmental impact. $PM_{2.5}$ (direct and formed) contributes to visibility impairment. Visibility impairment, called “regional haze,” occurs when particles and gases scatter and absorb light in the atmosphere. Reduced visibility is a problem in both urban and rural areas, but is of most concern in national parks and wilderness areas that are valued for their aesthetic qualities. Over the last few decades, sulfates, nitrates,

and other particles in the atmosphere have reduced the natural visual range in the western United States from approximately 140 miles to 33 to 90 miles and reduced the natural visual range in the eastern United States from approximately 90 miles to 14 to 24 miles. (Ceres Investors and Environmentalists for Sustainable Prosperity, Publication and Reports – Benchmarking Air Emissions of the 100 Largest Electric Generation Owners in the U.S., 2002, available at http://www.ceres.org/resources/reports/benchmarking-air-emissions-of-largest-electric-generation-owners-2002/view).

The proposed new rules and amendments are also expected to reduce emissions of HAPs and toxic substances that cause serious environmental effects. Like humans, animals may experience health problems, if exposed to sufficient quantities of air toxics over time. These health effects can include damage to the immune system, as well as neurological, reproductive (such as reduced fertility), developmental, respiratory, and other health problems (see EPA Toxics Website, http://www3.epa.gov/ttn/atw/allabout.html).

Table G below summarizes the estimated emission reductions from implementing the proposed new rules and amendments for each source category:

TABLE G

ESTIMATED EMISSION REDUCTIONS

Source Category	NO_x	VOC

Industrial Cleaning Solvents	N/A	0.33 tpd during the ozone season, and 120 tpy Additional reductions from best management practices[1]
Fiberglass Boat Manufacturing Materials	N/A	Minimal VOC reductions Additional reductions from best management practices[1]
Miscellaneous Metal and Plastic Parts Coatings	N/A	0.08 tpd during the ozone season, and 28.5 tpy Additional reductions from best management practices[1]
Paper, Film, and Foil Coating	N/A	Reductions from best management practices[1]
Compressor Turbines and Compressor Engines	198 tpy to 382 tpy[2]	N/A

[1] It is not feasible to quantify the emission reductions that would result from these best management practices in New Jersey, as materials used and other conditions vary greatly from facility to facility.

[2] These estimated NO_x reductions are based on the permitted allowable NO_x emission rates from the compressor turbines and compressor engines that would be impacted by the proposed rules.

The Department has identified 13 existing PFFC facilities in New Jersey to which the proposed PFFC best management practices requirements could apply. The existing definition of "paper coating" at N.J.A.C. 7:27-16.1 is broad enough to encompass these 13 existing facilities. It is not feasible to quantify the emission reductions that would result from adoption of these practices in New Jersey, as materials used and other conditions vary greatly from facility to facility; for example, the amount of evaporative emissions from spills, the distance open materials are conveyed, and the size of the openings in containers that will now be closed. This is also true for the emission reductions from the proposed best management practices at N.J.A.C. 7:27-16.14(f)3, 16.15(g), and 16.24(d).

Compliance with the FBMM CTG-recommended requirements is expected to result in a reduction of VOC emissions from fiberglass boat manufacturing operations nationally of approximately 40 percent. The Department does not, however, expect to see an emission reduction benefit in New Jersey of this magnitude. Two of the four boat manufacturers in New Jersey to which the proposed new requirements apply are already subject to the Boat Manufacturing NESHAP, upon which the FBMM CTG and the proposed requirements are based. The other two manufacturers have stated that they purchase and use raw materials that meet the CTG-recommended requirements. These compliant materials have become the industry

standard. Consequently, there will be minimal additional VOC reductions from the proposed VOC control limits. However, the proposed best management practices requirements at N.J.A.C. 7:27-16.14(f)3 will result in additional emission reductions. The best management practices reduce exposure of the materials to the atmosphere, which minimizes VOC emissions. As mentioned above, the maximum benefit from VOC reductions will be provided during the ozone season when VOCs readily combine with NO_x to form the ground-level ozone.

The Department identified 13 existing facilities to which the MMPPC CTG could apply. Based on the allowable emission rates established in the Department's Air Pollution Control Permits for these facilities, the MMPPC CTG recommendations, and comments from industry stakeholders, the Department estimates that implementing these recommendations would achieve VOC emission reductions of 0.08 tons per day (tpd) during the ozone season, and 28.5 tpy. Implementing best management practices would result in additional emission reductions. These best management practices reduce exposure of the materials to the atmosphere, which minimizes VOC emissions. As explained in the discussion of the best management practices for paper, film, and foil coatings, it is not feasible to quantify the emission reductions that would result from adoption of these practices in New Jersey.

Approximately 30 existing facilities could be subject to the proposed rules for industrial cleaning solvents. According to data in the ICS CTG and input from industry stakeholders, the Department estimates that implementing these control measures would achieve VOC emission reductions of 0.33 tpd during the ozone season, and 120 tpy. Implementing the proposed best management practices would result in additional emission reductions, by reducing exposure of the materials to the atmosphere.

According to the Department's air permitting data, there are eight existing natural gas compressor turbines, with capacities from 5,800 horsepower to 9,785 horsepower, operating in New Jersey. The permitted NO_x emission limit for six of the eight turbines is 42 ppmdv at 15 percent O_2 or less and the permitted NO_x emission limit for the other two turbines is 172.5 ppmdv at 15 percent O_2. The total potential to emit NO_x emissions from these two turbines is 284 tpy. The estimated NO_x reductions that are possible with the NO_x control technologies on the two turbines range from 114 tpy (57 tpy for each turbine) to 256 tpy (128 tpy for each turbine), as shown in Table D in the Economic Impact above.

According to the Department's air permitting data, there are 18 existing compressor engines, ranging from 440 bhp to 2,310 bhp, operating at New Jersey natural gas compressor facilities. Fifteen of these engines are capable of producing an output of 500 bhp or more and are already subject to the 2.5 grams/bhp-hr NO_x emission limit at N.J.A.C. 7:27-19.8(b). The remaining three compressor engines are capable of producing an output of less than 500 bhp, and are currently not regulated under N.J.A.C. 7:27-19. These uncontrolled engines have permitted NO_x emissions rates of 11.0 grams/bhp-hr. The total potential to emit NO_x emissions of the three engines is more than 140 tpy. The estimated NO_x reductions that could be realized by using NO_x control technologies on the three engines range from 84 tpy (28 tpy for each engine) to 126 tpy (42 tpy for each engine), as shown in Table F in the Economic Impact above.

Federal Standards Analysis

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), require State agencies that adopt, readopt, or amend State rules that exceed any Federal standards or requirements to include in the rulemaking document a Federal standards analysis. The proposed

new rules and amendments are needed to fulfill a Federal Clean Air Act requirement that New Jersey adopt control measures to reduce NO_x, VOCs, and $PM_{2.5}$ emissions to attain the ozone NAAQS and maintain the fine particulate NAAQS. For the VOC control measures, only one proposed VOC emission limit is more stringent than that recommended in EPA's CTG.

Based on stakeholder input, as discussed in the Summary above, the Department is not following the ICS CTG recommendation to exclude all graphic arts printing and coating operations from the recommended VOC content limits for the cleaning solvents used in the industrial cleaning process. The Department proposes to exclude all graphic arts printing and coating operations, except screen printing, which makes the proposed requirement for screen printing operations at N.J.A.C. 7:27-16.24(c) more stringent than the Federal requirements. The Department based this exception on the EPA's recommendation that states consult Connecticut's ICS CTG rule (R.C.S.A. 22a-174-20(ii)(3)(C)) and on stakeholder comments that compliant solvents are readily available and are being used. As discussed in the Economic Impact statement above, cleaning solvents that meet the proposed 500 g/l limit are readily available and companies that switch to compliant solvents, if they have not already done so, will not be subject to a financial burden as a result.

There is no Federal NO_x standard for compressor turbines and compressor engines that do not generate electricity. However, the CAA requires states in the OTR, which includes New Jersey, to develop RACT for existing sources of NO_x such as these turbines and engines. The proposed rules establish RACT for these sources, and are, therefore, consistent with the Federal requirements. Accordingly, no further analysis is required.

Jobs Impact

The Department anticipates that the proposed new rules and amendments related to VOC emissions will have no impact on job creation or retention in the State. Facilities subject to these proposed VOC rules (the PFFC, FBMM, MMPPC, and ICS source categories), will be able to comply with the rules without retaining additional staff. The Department does not anticipate that the cost of complying with the rules will require reductions in staff.

The proposed rules related to NO_x emissions may impact job creation or retention. Retrofitting or replacing combustion equipment could result in employment opportunities, as they may require additional engineering, construction, and installation.

Agriculture Industry Impact

Pursuant to the requirements of P.L. 1998, c. 48, adopted on July 2, 1998, the Department has evaluated the proposed new rules and amendments to determine the nature and extent of their impact on the agriculture industry. The proposed rules are expected to have a positive impact on the agriculture industry of New Jersey. The air quality improvements expected to be realized in New Jersey as a result of the additional NO_x and VOC control measures, in concert with other ambient ozone control strategies, are expected to have a positive impact on the agriculture industry by reducing the damage that high concentrations of ground-level ozone can cause to crops.

As discussed in the Environmental Impact above, the proposed new rules and amendments will reduce the ozone precursors, NO_x and VOC, in turn reducing the formation of tropospheric (ground-level) ozone that comes in contact with crops and other vegetation. Ground-level ozone interferes with various plants' ability to produce and store nutrients, which causes the plants to become more susceptible to disease, insects, other pollutants, and harsh

weather. This impacts annual crop production throughout the United States, resulting in significant losses, and injures native vegetation and ecosystems.

Regulatory Flexibility Analysis

As required by the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., the Department has evaluated the reporting, recordkeeping, and other compliance requirements that the proposed new rules and amendments would impose upon small businesses. The Regulatory Flexibility Act defines the term "small business" as "any business which is a resident in this State, independently owned and operated and not dominant in its field, and which employs fewer than 100 fulltime employees." Based upon this definition, the Department expects that some small businesses will be subjected to additional requirements. The cost to these small businesses is as discussed in the Economic Impact above.

PFFC, FBMM, MMPPC, and ICS VOC RACT requirements

There are 17 existing facilities that may be subject to the proposed paper, film, and foil coating rules. Not all of these facilities will exceed the applicability threshold. The Department believes the majority of these facilities could be classified as "small businesses." The facilities to which the new rules apply will only be subject to best management practices requirements. At least some of these facilities are already implementing these best management practices because of the cost savings involved, and, so, there would be no impact on them.

The proposed new rules would affect four existing fiberglass boat manufacturing facilities. At least three of these facilities can be classified as a "small business." All of the facilities have advised the Department that they are already complying with the proposed VOC limitations. Two of the facilities may have to increase the recordkeeping of the usage of resins

and gel coats; however, the Department anticipates that the facilities already keep track of this usage in some format as part of their accounting practices.

The Department identified 13 existing facilities that could be subject to the proposed MMPPC rulemaking. The majority of these facilities could be classified as "small businesses." These facilities either already meet the proposed VOC content levels or should be able to reformulate any coatings that exceed the VOC content levels. This information was confirmed by stakeholders. The VOC content standards were originally published in 2008, so the industry has had sufficient time to develop compliant coatings. In addition, several of the proposed coating category VOC limitations are the same as the existing limitations in Table 7B, N.J.A.C. 7:27-16.7(f), which they replaced. In addition, the proposed new rules apply only to source operations at facilities whose cumulative actual VOC emissions exceed 2.7 tons during any consecutive 12-month period from all miscellaneous metal product and plastic parts surface coating operations, including related cleaning activities. This will exempt small businesses whose emissions are below this threshold.

Approximately 30 existing facilities could be subject to the proposed rules for industrial cleaning solvents. Some of these facilities could be classified as small businesses. Small businesses that use non-compliant cleaning solvents will have to switch to solvents that meet the proposed new lower VOC limits. There should be no change in how equipment is cleaned at these facilities, only a change in the type of solvent used. Although some additional recordkeeping will be required, there should be minimal impact on these facilities, since the compliant VOC cleaning solvents are readily available, are currently being used in New Jersey and other jurisdictions, and, in some cases, will result in a net cost savings. In addition, a business would only be subject to the new standard if it uses more than 855 gallons per year of

cleaning materials. This would exempt small businesses that do not use a large quantity of cleaning solvent.

The Department anticipates that none of the affected businesses will need to hire a consultant or other professional in order to comply with the proposed best management practices.

Compressor Turbine and Compressor Engine NO_x RACT Requirements

The facilities impacted by the proposed rules related to compressor turbines and compressor engines are not small businesses and, therefore, no regulatory flexibility analysis is required as to those rules.

Housing Affordability Impact Analysis

In accordance with N.J.S.A. 52:14B-4.1b, the Department has evaluated the proposed new rules and amendments to determine their impact, if any, on the affordability of housing. The proposed new rules and amendments relate to emission standards for major and minor facilities; accordingly, the proposed rules are extremely unlikely to evoke a change in the average costs associated with housing in the State.

Smart Growth Development Impact Analysis

In accordance with N.J.S.A. 52:14B-4.1b, the Department has evaluated the proposed new rules and amendments to determine their impact, if any, on housing production within Planning Areas 1 or 2, or within designated centers, under the State Development and Redevelopment Plan. The proposed new rules and amendments are not expected to impact the residential sector; rather, they relate to emission standards and best management practices for

major and minor facilities. Therefore, the proposed rules will not evoke a change in housing production in Planning Areas 1 or 2, or within designated centers.

Full text of the proposal follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus]):

CHAPTER 27

AIR POLLUTION CONTROL

SUBCHAPTER 16. CONTROL AND PROHIBITION OF AIR POLLUTION BY VOLATILE ORGANIC COMPOUNDS

7:27-16.1 Definitions

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

…

"Adhesion primer" or "adhesion promoter" means a coating that is applied to a polyolefin part to promote the adhesion of a subsequent coating. An adhesion primer or promoter is identified as such on its accompanying safety data sheet (SDS).

"Adhesive" means any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means.

"Aerosol coating product" means a pressurized coating product containing pigments or resins that is dispensed by means of a propellant and is packaged in a

disposable can for hand-held application, or for use in specialized equipment for ground traffic/marking applications.

"Aerospace coating" means a coating to be applied to the fabricated part, assembly of parts, or completed unit of any aircraft, helicopter, missile, or space vehicle, including prototypes and test models.

…

"Air-assisted airless spray" means a coating spray application system using fluid pressure to atomize the coating and lower pressure air to adjust the shape of the spray pattern.

…

"Air-dried coating" means a coating that is cured at a temperature of up to 90 degrees Celsius (194 degrees Fahrenheit).

…

"Antifoulant coating" or "antifouling coating" means a coating applied to the underwater portion of a pleasure craft to prevent or reduce the attachment of biological organisms, which is registered with the EPA as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. § 136).

"Antifouling sealer/tiecoat" means a coating applied over a biocidal antifouling coating to prevent the release of biocides into the environment and/or to promote adhesion between an antifouling and a primer or other antifoulings.

…

"Application equipment cleaning" means the process of flushing or removing resin and gel coats from the interior or exterior of equipment that is used to apply resin or gel coat in the manufacturing of fiberglass parts.

…

"Assembly adhesive" means any chemical material used in the joining of one fiberglass, metal, foam, or wood part to another to form a temporary or permanently bonded assembly. Assembly adhesives include, but are not limited to, methacrylate adhesives and putties made from polyester or vinylester resin mixed with inert fillers or fibers.

…

"Atomized resin application" means a resin application technology in which the resin leaves the application equipment and breaks into droplets or an aerosol as it travels from the application equipment to the surface of the part. Atomized application methods include, but are not limited to, resin spray guns and resin chopper spray guns.

…

"Automobile and light-duty assembly" means the manufacturing of any passenger car or passenger car derivative capable of seating 15 or fewer passengers, or any motor vehicle rated at 8,500 pounds (3,856 kilograms) gross vehicle weight or less, that is designed primarily for purposes of transportation of property, or a derivative of such vehicle including, but not limited to, pick-ups, vans, and window vans.

…

"Automotive/transportation part" or "automotive/transportation product" means an interior or exterior component of a motor vehicle or mobile source.

…

"Baked coating" means a category of coating, other than a high bake or low bake coating, which is cured at a temperature at or above 90 degrees Celsius (194 degrees Fahrenheit).

…

"Black automotive coating" means a coating that meets both of the following criteria:

1. **Maximum lightness: 23 units; and**
2. **Saturation: less than 2.8 umits, where saturation equals the square root of $A^2 + B^2$.**

These criteria are based on Cielab color space, 0/45 geometry. For spherical geometry, specular included, maximum lightness is 33 units.

…

"Business machine" means a device that uses electronic or mechanical methods to process information, perform calculations, print or copy information, or convert sound into electrical impulses for transmission, including devices listed in Standard Industrial Classification Code numbers 3572, 3573, 3574, 3579, and 3661, and photocopy machines, a subcategory of Standard Industrial Classification Code number 3861.

…

"Camouflage coating" means a coating principally used by the military to conceal equipment from detection.

…

"Clear coating" means a colorless coating that contains binders, but no pigment, and is formulated to form a transparent film.

"Clear gel coat" means a gel coat that is clear or translucent, so that underlying colors are visible. This term does not include tooling gel coats used to build or repair molds.

...

"Closed molding" means a molding process in which pressure is used to distribute resin through the reinforcing fabric placed between two mold surfaces to either saturate the fabric or fill the mold cavity. The pressure may be clamping pressure, fluid pressure, atmospheric pressure, or vacuum pressure, used either alone or in combination. The mold surfaces may be rigid or flexible. Closed molding includes, but is not limited to, compression molding with sheet molding compound, infusion molding, resin injection molding (RIM), vacuum-assisted resin transfer molding (VARTM), resin transfer molding (RTM), and vacuum-assisted compression molding. Processes in which a closed mold is used only to compact saturated fabric or remove air or excess resin from the fabric (such as in vacuum bagging), are not considered closed molding. Open molding steps, such as the application of a gel coat or skin coat layer by conventional open molding prior to a closed molding process, are not closed molding.

…

"Cured resin" or "cured gel coat" means a resin or gel coat that has been polymerized and has changed from a liquid to a solid.

…

"Digital printing" means a method of printing in which an electronic output device transfers variable data, in the form of an image, from a computer to a substrate.

…

"Dip coat" means a method of applying a coating material to a substrate by dipping the part into a tank of coating material.

…

"Drum" means any cylindrical metal shipping container larger than 12 gallons capacity, but no larger than 110 gallons capacity.

...

"Electrical component" or "electronic component" means a component that generates, converts, transmits, or modifies electrical energy. An electrical component or electronic component includes, but is not limited to, a wire, winding, stator, rotor, magnet, contact, relay, printed circuit board, printed wire assembly, wiring board, integrated circuit, resistor, capacitor, and transistors. Electrical component and electronic component do not include a cabinet in which an electrical component or an electronic component is housed.

"Electric-dissipating coating" means a coating that rapidly dissipates a high-voltage electric charge.

…

"Electric-insulating and thermal-conducting coating" means a coating that displays an electrical insulation of at least 1,000 volts DC per mil on a flat test plate and an average thermal conductivity of at least 27 hundredths (0.27) BTU per hour-foot-degree Fahrenheit.

"Electric-insulating varnish" means a non-convertible type coating applied to electric motors, components of electric motors, or power transformers, to provide electrical, mechanical, and environmental protection or resistance.

"Electrostatic prep coat" means a coating that is applied to a plastic part solely to provide conductivity for the subsequent application of a prime, a topcoat, or other coating through the use of electrostatic application methods. An electrostatic prep coat is clearly identified as an electrostatic prep coat on its accompanying safety data sheet (SDS).

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

...

"EMI/RFI shielding" means a coating used on electrical or electronic equipment to provide shielding against electromagnetic interference (EMI), radio frequency interference (RFI), or static discharge.

...

"Equipment cleaning" means an industrial cleaning unit operation conducted to clean any production equipment that may be cleaned in place (not moved to a cleaning area) to prevent cross-contamination or for maintenance purposes. Examples include, but are not limited to, cleaning of punch presses, electrical contacts, pump parts, packaging equipment, rollers, ink pans, carts, press frames, and table tops.

"Etching filler" means a coating that contains less than 23 percent solids by weight and at least 0.5 percent acid by weight, and is used instead of applying a pretreatment coating followed by a primer.

...

"Extreme high gloss coating (craft)" or "extreme high gloss topcoat (craft)" means a coating used for pleasure craft that achieves at least 90 percent reflectance on a 60 degree meter when tested by the American Society for Testing Material Test Method D 523 89.

"Extreme high gloss coating (metal)" means a coating used for metal parts and products that, when tested by the American Society for Testing Material Test Method D-523 adopted in 1980, shows a reflectance of 75 or more on a 60 degree meter.

"Extreme performance coating" means a coating formulated for and exposed to harsh environmental conditions including, but not limited to: [outside]

1. Outside weather conditions all of the time[, or temperatures]**;**

2. Temperatures consistently above[,] 95[(C,] **degrees Celsius** or [temperatures consistently] below [0(C, or solvents] **zero degrees Celsius;**

3. Solvents, detergents, abrasives or scouring agents; [or]

4. Chronic exposure to corrosive **or acidic agents, chemicals, chemical fumes, chemical mixtures, chemical solutions, chemical** atmospheres or **chemical** fluids**; or**

5. Repeated heavy abrasion, including mechanical wear.

Extreme performance coatings include, but are not limited to, coatings applied to locomotives, railroad cars, farm machinery, and heavy duty trucks.

…

"Fiberglass boat" means a vessel in which either the hull or the deck is built from a composite material consisting of a thermosetting resin matrix reinforced with fibers of glass, carbon, aramid, or other material.

...

"Filled tooling resin" or "filled production resin" means a resin to which an inert material has been added to change viscosity, density, shrinkage, or other physical properties.

"Finish primer/surfacer" means a coating applied with a wet film thickness of less than 10 mils prior to the application of a topcoat to provide corrosion resistance, adhesion of subsequent coatings, or a moisture barrier, or to promote a uniform surface necessary for filling in surface imperfections.

...

"Flexible coating" means any coating that is required to comply with engineering specifications for impact resistance, mandrel bend, or elongation as defined by the original equipment manufacturer.

"Flexible magnetic data storage disc" means a flat, circular plastic film, contained in a non-rigid envelope, with a magnetic coating on which digital information can be stored by selective magnetization of portions of the flat surface.

"Flexible packaging materials" means any paper, plastic, or foil substrate, or any combination of those materials that is coated, waxed, laminated, printed, or otherwise treated for fabrication into bags, pouches, or other preformed flexible packages.

...

"Floor cleaning" means an industrial cleaning unit operation conducted to clean floors in any production area of a facility.

"Flow coat" means the process whereby a metal or plastic part or product is conveyed over an enclosed sink, where a coating is applied at low pressure as the item

passes under a series of nozzles, and excess coating drains back into the sink, is filtered, and pumped back into a coating holding tank.

"Flow coater" means a piece of equipment for nonatomizing application of applying resins and gel coats to an open mold with a fluid nozzle, with continuous consolidated streams leaving the nozzle, and with no air supplied to the nozzle.

"Fog coat" means a coating that is applied to a plastic part for the purpose of color matching without masking a molded-in texture.

...

"Gel coat" means a thermosetting resin surface coating formulation containing substances, such as styrene or methyl methacrylate, either pigmented or clear, that provides a cosmetic enhancement and improves resistance to ultraviolet radiation, water or chemical adsorption, and degradation from exposure to the elements. Gel coat layers do not contain any reinforcing fibers and gel coats are applied directly to mold surfaces or to a finished laminate.

...

"Gloss reducer" means a coating that is applied to a plastic part solely to reduce the shine of the part. A gloss reducer shall not be applied at a thickness of more than 0.5 mils of coating solids.

...

"Heat-resistant coating" means a coating that must withstand a temperature of at least 400 degrees Fahrenheit during normal use.

...

"High bake coating" means a coating designed to cure only at temperatures of more than 90 degrees Celsius (194 degrees Fahrenheit) and used for the surface coating of a plastic automotive/transportation or business machine part.

"High build primer/surfacer" means a coating applied with a wet film thickness of 10 mils or more prior to the application of a topcoat for purposes of providing corrosion resistance, adhesion of subsequent coatings, or a moisture barrier, or promoting a uniform surface necessary for filling in surface imperfections.

"High gloss coating (craft)" or "high gloss topcoat (craft)" means a pleasure craft coating that achieves at least 85 percent reflectance on a 60 degree meter when tested by the American Society for Testing Material Test Method D 523-89.

"High-performance architectural coating" means a coating used to protect architectural subsections and that meets the requirements of the Architectural Aluminum Manufacturer Association's publication number AAMA 2604-05 (Voluntary Specification, Performance Requirements, and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels) or AAMA 2605-05 (Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels).

"High-temperature coating" means a coating that is certified to withstand a temperature of at least 1,000 degrees Fahrenheit for 24 hours.

"High-volume, low-pressure (HVLP) spray" means a method of applying a spray coating using a spray gun that operates at a level of no more than 10 pounds per square inch of atomized air pressure at the air cap.

...

"Industrial cleaning" means the use of industrial cleaning solvents at one or more of the following unit operations: equipment cleaning, floor cleaning, large manufactured components cleaning, line cleaning, parts cleaning, small manufactured components cleaning, spray booth cleaning, spray gun cleaning, and tank cleaning. "Industrial cleaning" can occur through processes including, but not limited to, brushing, wiping, flushing, or spraying. "Industrial cleaning" does not include janitorial cleaning.

"Industrial cleaning solvent" means a substance that contains VOCs and that is used in an industrial cleaning unit operation to remove contaminants including, but not limited to, adhesives, dirt, grease, inks, oil, paint, or soil, from the surfaces of parts, products, tools, machinery, equipment, vessels, floors, walls, or other work production related work areas.

...

"Janitorial cleaning" means the general and maintenance cleaning of building or facility components including, but not limited to, floors, ceilings, walls, windows, doors, stairs, restrooms, furnishings, kitchens, and exterior surfaces of office equipment. "Janitorial cleaning" includes graffiti removal. "Janitorial cleaning" does not include the cleaning of parts, products, or equipment, where such parts, products, or equipment are incorporated into or used exclusively in manufacturing a product or the cleaning of work areas, such as laboratory benches, where manufacturing or repair activity is performed.

...

"Large manufactured components cleaning" means an industrial cleaning unit operation conducted to clean large parts including, but not limited to, automobile bodies and furniture sheet metal, as a step in a manufacturing process.

...

"Line cleaning" means an industrial cleaning unit operation conducted to clean coating lines and any associated tank that transports raw material including, but not limited to, paint or resin, and that are cleaned separately from spray guns and other process equipment.

...

"Low bake coating" means a coating designed to cure only at temperatures at or below 90 degrees Celsius (194 degrees Fahrenheit) and used for the surface coating of a plastic automotive/transportation or business machine part.

...

"Marine vessel" means any component or structure intended for exposure to a marine environment, including an oil drilling platform and a navigational aid.

"Mask coating" means a thin film coating applied through a template to coat a small portion of a substrate.

...

"Medical device" means an instrument, apparatus, implement, machine, contrivance, implant, in-vitro reagent, or other similar article, including any component or accessory that is:

1. Intended for use in the diagnosis of disease or other conditions or in the cure, mitigation, treatment, or prevention of diseases;

2. Intended to affect the structure or any function of the body; or

3. Defined in the National Formulary or the United States Pharmacopoeia or any supplement thereto, available from the U.S. Pharmacopeial Convention, www.usp.org.

"Medical device and pharmaceutical manufacturing operation" means an operation to manufacture medical devices or pharmaceutical products, including the associated manufacturing and product-handling equipment and material, work surfaces, maintenance tools, and room surfaces that are subject to the Good Manufacturing/Laboratory Practice, available from the U.S. Food and Drug Administration (www.fda.gov), or the Centers for Disease Control/National Institute of Health guidelines for the biological disinfection of surfaces, available from the Centers for Disease Control and Prevention (www.cdc.gov).

"Metal and plastic parts application methods" means any of the following coating application methods: electrostatic spray, HVLP spray, flow coat, roller coat, dip coat (including electrodeposition), airless spray, or air-assisted airless spray.

"Metal container or closure coating" means any coating applied to either the interior or exterior of formed metal cans, drums, pails, lids or crowns, or flat metal sheets that are intended to be formed into cans, drums, pails, lids, or crowns.

"Metallic coating" means a coating that contains more than five grams of metal particles per liter of coating, as applied.

...

"Metal particle" means pieces of a pure elemental metal or a combination of elemental metals.

"Military specification coating" means a coating that has a formulation approved by a United States military agency for use on military equipment.

"Miscellaneous industrial adhesive" means an adhesive (including an adhesive primer used in conjunction with certain types of adhesives) used at industrial

manufacturing and repair facilities for a wide variety of products and equipment that operate adhesives application processes.

...

"Mold" means the cavity or surface into or on which gel coat, resin, and fibers are placed and from which finished fiberglass parts take their form.

"Mold-seal coating" means the initial coating applied to a new mold or a repaired mold to provide a smooth surface that, when coated with a mold release coating, prevents products from sticking to the mold.

"Monomer VOC" means a relatively low molecular weight organic compound that combines with itself, or other similar compounds, by a cross-linking chemical reaction to become a cured thermosetting resin (polymer). Monomer VOC includes, but is not limited to, styrene and methyl methacrylate.

"Monomer VOC content" means the weight of the monomer VOC, divided by the weight of the material applied.

"Motor vehicle" means any self-propelled vehicle, including, but not limited to, a car, truck, bus, golf cart, motorcycle, tank, and armored personnel carrier.

"Motor vehicle bedliner" means a multi-component coating, used at a motor vehicle material surface coating operation, that is applied to a cargo bed after the application of a topcoat to provide additional durability and chip resistance.

"Motor vehicle cavity wax" means a coating, used at a motor vehicle material surface coating operation facility, that is applied into the cavity of a vehicle primarily for the purpose of enhancing corrosion protection.

"Motor vehicle deadener" means a coating, used at a motor vehicle material surface coating operation, that is applied to selected vehicle surfaces primarily for the purpose of reducing the sound of road noise in the passenger compartment.

"Motor vehicle gasket/gasket sealing material" means a fluid, used at a motor vehicle material surface coating operation, applied to coat a gasket or to replace and perform the same function as a gasket. "Motor vehicle gasket/gasket sealing material" includes room temperature vulcanization (RTV) seal material.

"Motor vehicle lubricating wax/compound" means a protective lubricating material, used at a motor vehicle material surface coating operation, that is applied to vehicle hubs and hinges.

"Motor vehicle material surface coating operation" means a surface coating operation performed at a facility that is not an automobile or light-duty truck assembly coating facility.

"Motor vehicle sealer" means a high viscosity material, used at a motor vehicle material surface coating operation, for the primary purpose of completely filling body joints of automobiles and light-duty trucks, so that there is no intrusion of water, gases, or corrosive materials into the passenger area of the body compartment. "Motor vehicle sealer" is generally, but not always, applied in the paint shop after the body has received an electrodeposition primer coating and before the application of subsequent coatings (for example, a primer-surfacer). "Motor vehicle sealer" is also known as "motor vehicle sealant," "motor vehicle sealant primer," or "motor vehicle caulk."

"Motor vehicle truck interior coating" means a coating, used at a motor vehicle material surface coating operation, that is applied to the trunk interior to provide chip protection.

"Motor vehicle underbody coating" means a coating, used at a motor vehicle material surface coating operation, that is applied to the undercarriage or firewall to prevent corrosion and/or provide chip protection.

"Multi-colored coating" means a coating that exhibits more than one color when applied, and that is packaged in a single container and applied in a single coat.

"Multi-component coating" means a coating requiring the addition of a separate reactive resin, commonly known as a catalyst or hardener, before application, to form an acceptable dry film.

...

"Navigational aid" means a buoy or other U.S. Coast Guard waterway marker.

...

"Nonatomized resin application" means any application technology in which the resin is not broken into droplets or an aerosol as it travels from the application equipment to the surface of the part. Nonatomized resin application methods include, but are not limited to, flow coaters, chopper flow coaters, pressure-fed resin rollers, resin impregnators, and hand application (for example, application by paint brush or paint roller).

...

"Numismatic die" means the metal piece engraved with the design used for stamping coins.

...

"One-component coating" means a coating that is ready for application as it comes out of its container to form an acceptable dry film. A thinner, necessary to reduce the viscosity, is not a component of a "one-component coating."

...

"Open molding resin and gel coat operation" means any process in which reinforcing fibers and resins are placed in a mold and are open to the surrounding air while the reinforcing fibers are saturated with resin. This term includes operations in which a vacuum bag or similar cover is used to compress an uncured laminate to remove air bubbles or excess resin, or to achieve a bond between a core material and a laminate. This term also includes, but is not limited to, open molding tooling gel coat operations.

...

"Optical coating" means a coating applied to an optical lens.

...

"Overall control efficiency" means the product of the capture efficiency and the control device efficiency.

...

"Pan-backing coating" means a coating applied to the surface of pots, pans, or other cooking implements that are exposed directly to a flame or other heating elements.

...

"Parts cleaning" means an industrial cleaning unit operation conducted to clean miscellaneous items using an industrial cleaning solvent. Examples of miscellaneous items include, but are not limited to, applicator tips, bearings, brushes, circuit boards, cutoff

steel/machined parts, engine blocks, filters, gauges, machine parts, motors and assemblies, oil guns, pumps, screws, tool dies, tools, truck parts, and welded parts.

...

"Pharmaceutical product" means a preparation or compound, including any drug, analgesic, decongestant, antihistamine, cough suppressant, vitamin, mineral, or herb supplement intended for human or animal consumption, that is used to cure, mitigate, or treat disease, or improve or enhance health.

...

"Pigmented gel coat" means an opaque gel coat used to manufacture parts for sale, but does not include a tooling gel coat used to build or repair molds.

...

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

...

"Pleasure craft" means a vessel that is manufactured or operated primarily for recreational purposes, or leased, rented, or chartered to a person or business for recreational purposes.

"Pleasure craft coating" means a marine coating, except an unsaturated polyester resin (fiberglass) coating, applied to a pleasure craft by brush, spray, roller, or other means.

...

"Polyester" means a synthetic, long-chain polymeric ester produced mainly by reaction of dibasic acids with dihydric alcohols.

"Polyester resin material" means a resin used to fabricate composite products. "Polyester resin material" includes, but is not limited to, an unsaturated polyester resin, such as orthophthalic, isophthalic, halogenated, dicyclopentadiene, bisphenol A, and furan, a vinylester resin, cross-linking agent, catalyst, gel coat, inhibitor, accelerator, promoter, and any other material containing VOC that is used in a polyester resin operation.

"Polyester resin operation" means an operation that fabricates, reworks, repairs, or touches up composite products for commercial, military, or industrial use by mixing, pouring, manually applying, molding, impregnating, injecting, forming, filament winding, spraying, pultruding, centrifugally casting, curing, or corn-forming by using polyester resin materials.

"Polymer" means a chemical compound that consists of a large number of repeating monomer VOC.

...

"Powder coating" means any coating applied as a dry, finely divided solid that, when melted and fused, adheres to the substrate as a paint film.

...

"Precision optics" means the optical elements used in electro-optical devices that are designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes of light energy levels.

...

"Prefabricated architectural component coating" means a coating applied to metal parts and products that are to be used as an architectural structure.

...

"Pretreatment coating" means a coating used to provide surface etching that contains no more than 12 percent solids by weight and at least 0.5 percent acid by weight and is applied directly to metal surfaces to provide corrosion resistance, adhesion, and ease of stripping.

"Pretreatment wash primer" means a coating used to provide surface etching that contains no more than 25 percent solids by weight and at least 0.1 percent acid by weight and is applied directly to fiberglass and metal surfaces to provide corrosion resistance and adhesion of subsequent coatings.

...

"Production resin" means any resin used to manufacture parts for sale, but does not include tooling resins used to build or repair molds, or assembly adhesives. Skin coat is a type of production resin.

...

"Pultrusion" means a continuous manufacturing process for composite products that have a uniform cross-sectional shape whereby continuous strands of fiber-reinforcing material are pulled through a strand-tensioning device into a resin impregnation chamber or bath and then pulled through a shaping die.

...

"Red automotive coating" means a coating that meets all of the following criteria:

1. Yellow limit: the hue of hostaperm scarlet;

2. Blue limit: the hue of monstral red-violet;

3. Lightness limit for metallics: 35 percent aluminum flake;

4. Lightness limit for solids: 50 percent titanium dioxide white;

5. Solid reds: hue angle of -11 to 38 degrees and maximum lightness of 23 to 45 units; and

6. Metallic reds: hue angle of -16 to 35 degrees and maximum lightness of 28 to 45 units.

These criteria are based on the Cielab color space, 0/45 geometry. For spherical geometry, specular included, the upper limit is 49 units. The maximum lightness varies as the hue moves from violet to orange. This is a natural consequence of the strength of the colorants, and real colors show this effect.

...

"Repair" means, with respect to a VOC leak, a corrective action taken to eliminate the leak or reduce the leak to below regulated levels. **With respect to fiberglass boat manufacturing materials, "repair" means that portion of the fabrication process that requires the addition of polyester resin or other composite materials to portions of a previously fabricated product in order to mend damage.**

"Repair coating" means a coating used to re-coat portions of a previously coated product that has sustained mechanical damage to the coating following normal coating operations.

...

"Research and development laboratory" means any facility with the primary purpose of conducting research and development into new processes and products, including academic and technological research and development, provided that such a facility is operated under the close supervision of technically trained personnel and is not

engaged in the manufacture of products for commercial sale, except in a *de minimis* manner.

...

"Resin" means any thermosetting resin, with or without pigment, containing substances, such as styrene (CAS No. 100-42-5) or methyl methacrylate (CAS No. 80-62-6) and used to encapsulate and bind together reinforcement fibers in the construction of fiberglass parts. Resin includes, but is not limited to, filled tooling resin (filled production resin), production resin, and tooling resin.

"Resin and gel coat mixing operation" means any operation in which resin or gel coat, including the mixing of putties or polyputties, is combined with additives that include, but are not limited to, fillers, promoters, or catalysts.

"Resin impregnator" means a mechanical nonatomized resin application method in which dry fiberglass fabric is fed down through a pair of finished metal rollers and the fabric is saturated with resins in a controlled fiber-to-resin ratio for each specific composite product.

"Resist coating" means a coating that is applied to a plastic part before metallic plating to prevent deposits of metal on portions of the plastic part.

"Rigid magnetic data storage disc" means a flat, circular, non-flexible plate with a magnetic coating on which digital information can be stored by selective magnetization of portions of the flat surface.

...

"Roll coat" means a method of applying a coating to a substrate by means of hard rubber, elastomeric, or metal rolls. A roll coat application is used for high viscosity coatings, particularly adhesives, and for small surface areas.

"Roll-out" means the process of using rollers, squeegees, or similar tools to compact reinforcing material saturated with resin to remove trapped air or excess resin.

...

"Safety-indicating coating" means a coating that changes physical characteristics, such as color, to indicate unsafe conditions.

...

"Semiconductor wafer fabrication operation" means an operation performed in order to manufacture semiconductor or related solid state devices, such as semiconductor diodes and stacks and including rectifiers, integrated microcircuits, transistors, solar cells, and light sensing and emitting devices. Semiconductor wafer fabrication excludes crystal growth and blank wafer production, circuit separation, assembly, and encapsulation.

...

"Shipbuilding and repair coating" means the coating used during any building, repair, repainting, converting, or alteration of ships.

"Shock-free coating" means a coating applied to electrical components to protect the user from electric shock. The coating has characteristics of being low capacitance and high resistance, and having resistance to breaking down under high voltage.

...

"Silicone-release coating" means a coating that contains silicon resin and is intended to prevent food from sticking to metal surfaces, such as baking pans.

...

"Skin coat" means a layer of resin and fibers applied over the gel coat to protect the gel coat from being deformed by the next laminate layers. Skin coat is a type of production resin.

...

"Small manufactured-components cleaning" means an industrial cleaning unit operation conducted to clean a small part as a step in the manufacturing process of that small part. Small parts include, but are not limited to, circuit breaker cases, electrical contacts, engine components, glass windows, machined parts, molded parts, plastic parts, sheet metal panels, steel and copper components, subassemblies, switch covers, switches, threads and bolts, tin/silver-plated terminals, and upholstered parts.

...

"Solar-absorbent coating" means a coating that has as its prime purpose the absorption of solar radiation.

"Solid-film lubricant" means a very thin coating consisting of a binder system containing as its chief pigment material one or more of the following: molybdenum disulfide, graphite, polytetrafluoroethylene, or other solids that act as a dry lubricant between meeting surfaces.

...

"Spray booth cleaning" means an industrial cleaning unit operation conducted to clean all interior surfaces of a spray booth and all equipment within the booth including, but not limited to, conveyors, floor, grating, robots, and spray booth walls.

"Spray gun cleaning" means an industrial cleaning unit operation conducted to clean spray guns, attached paint lines, and any other gun equipment used in applying a coating.

...

"Stencil coat (automotive/transportation/business)" means a coating that is applied over a stencil to a plastic automotive/transportation or business machine part at a thickness of one mil or less of coating solids, most frequently letters, numbers, or decorative designs.

"Stencil coating (metal and plastic)" means an ink or a pigmented coating that is rolled or brushed onto a template or stamp in order to add identifying letters, symbols, and/or numbers. "Stencil coating (metal and plastic)" does not include stencil coat (automotive/transportation/business).

...

"Stripping" means the removal of cured coatings, inks, adhesives, or maskants. Examples include, but are not limited to, wood furniture stripping, metal parts stripping, and dry film stripper operations.

...

"Texture coat" means a coating that is applied to a plastic part that, in its finished form, consists of discrete raised spots of the coating.

...

"Tooling gel coat" means the gel coat used to build or repair molds (also known as tools) or prototypes (also known as plugs) from which molds will be made.

"Tooling resin" means the resin used to build or repair molds (also known as tools) or prototypes (also known as plugs) from which molds will be made.

"Topcoat (craft)" means any final pleasure craft coating applied to the interior or exterior of a pleasure craft.

"Touch-up" means, for metal and plastic parts, that portion of the process that is necessary to cover minor imperfections. With respect to fiberglass boats, "touch-up" means the application of resin or gel coat to cover minor cosmetic imperfections that occur during fabrication or field installations.

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

...

"Translucent coating" means a coating that contains binders and pigment, and is formulated to form a colored, but not opaque, film.

...

"Unit operation" means an industrial operation classified or grouped according to its function in an operating environment. A unit operation may consist of one or more items of equipment, for example, both a reactor and a mixing vessel or several mixing vessels.

...

"Vacuum bagging" means any molding technique in which the reinforcing fabric is saturated with resin and then covered with a flexible sheet that is sealed to the edge of the mold and where a vacuum is applied under the sheet to compress the laminate, remove excess resin, or remove trapped air from the laminate during curing. Vacuum bagging does not include processes that meet the definition of closed molding.

...

"Vacuum-metalizing process" means an application process, also known as physical vapor deposition (PVD) process, whereby metal is vaporized and deposited on a substrate in a vacuum chamber.

"Vacuum-metalizing coating (automotive/transportation/business machine)" means a topcoat or basecoat that is used in the vacuum-metalizing process for the surface coating of a plastic automotive/transportation or business machine part.

"Vacuum-metalizing coating (metal and plastic)" means the undercoat applied to the substrate on which metal is deposited or the overcoat applied directly to the metal film using a vacuum-metalizing or physical vapor deposition (PVD) process. "Vacuum-metalizing coating (metal and plastic)" does not include vacuum-metalizing coating (automotive/transportation/business machine).

...

"Vinylester resin" means a thermosetting resin containing esters of acrylic or methacrylic acids and having double-bond and ester linkage sites only at the ends of the resin molecules.

...

7:27-16.7 Surface coating and graphic arts operations

(a) – (f) (No change.)

TABLE 7A

(No change.)

TABLE 7B

MISCELLANEOUS SURFACE COATING OPERATIONS

CONTROL CRITERIA AND COMPLIANCE DATES

Maximum Allowable VOC Content per Volume of Coating (minus water)

Type of Operation	Pounds per Gallon	Kilogram per Liter	Final Compliance Date
...			
[Coating of Miscellaneous Metal Parts and Products			
Clear Coating	4.3	0.52	December 31, 1983
Air-dried Coating	3.5	0.42	December 31, 1981]
Extreme Performance Coating	3.5	0.42	
All other coatings	3.0	0.36	
...			

TABLES 7C and 7D

(No change.)

(g) - (t) (No change.)

(u) The owner or operator of a facility with a paper coating operation that emits total actual VOC emissions, prior to controls, at a rate greater than 15 pounds per day for all paper coating operations and performs related cleaning activities at that facility, shall implement the following best management practices and shall record and maintain on site the documentation of these best management practices, pursuant to N.J.A.C. 7:27-16.22:

1. Each container of VOC-containing cleaning materials or used shop towels shall have a cover that is closed, except when in use or when material is being added to or removed from the container, which shall prevent the contents from coming in contact with and being exposed to the atmosphere;

2. All VOC-containing cleaning materials shall be conveyed in closed containers or pipes, which shall prevent the contents from coming in contact with and being exposed to the atmosphere; and

3. All spills of VOC-containing coatings, thinners, and cleaning materials shall be cleaned up immediately.

7:27-16.14 [(Reserved.)] **Fiberglass boat manufacturing materials**

(a) Except as provided at (b) below, this section applies to any fiberglass boat manufacturing facility whose total actual VOC emissions, before add-on controls, exceed 15 pounds per day from all fiberglass boat manufacturing operations, calculated as follows:

1. Include in the calculation of the 15 pounds per day limit any emissions from:

i. Open molding resin and gel coat operations;

ii. Resin and gel coat mixing operations;

iii. Resin and gel coat application equipment cleaning operations; and

iv. Polyester resin putty used to assemble fiberglass parts.

2. Exclude from the calculation of the 15 pounds per day limit any emissions from:

i. Surface coating formulation applied to fiberglass boats or pleasure crafts; and

ii. Industrial adhesive used in the assembly of fiberglass boats, other than a polyester resin putty used to assemble fiberglass parts.

(b) A fiberglass boat manufacturing facility is exempt from this section if it manufactures only boat trailers, or parts of boats, such as hatches, seats, or lockers, and does not manufacture boat hulls or decks from fiberglass or build molds to make fiberglass boat hulls or decks.

(c) The following materials and operations are exempt from (d) and (e) below:

1. Production resin that is applied with nonatomized resin application equipment, and that:

i. Must meet specifications for use in military vessels;

ii. The U.S. Coast Guard must approve in accordance with 46 CFR Subchapter Q, Equipment, Construction, and Materials: Specifications and Approval, for use in the construction of lifeboats, rescue boats, and other life-saving appliances; or

iii. The U.S. Coast Guard must approve for use in the construction of small passenger vessels regulated by 46 CFR Subchapter T, Small Passenger Vessels (Under 100 Gross Tons);

2. Production or tooling resin, or a pigmented, clear, or tooling gel coat purchased for repair or touch-up of fiberglass parts or molds. The total amount of resin and

gel coat material exempted from (d) and (e) below shall not exceed one percent by weight of all resin and gel coat purchased at the facility on a 12-month rolling average basis;

3. One hundred percent pure vinylester resin (not a blend of vinylester and polyester), purchased for use as a skin coat and applied with nonatomized resin application equipment, where the total amount of the 100 percent pure vinylester resin purchased does not exceed five percent of all resin purchased at the facility on a 12-month rolling average basis;

4. Surface coating formulation applied to fiberglass boats or pleasure crafts;

5. Industrial adhesive used in the assembly of fiberglass boats, with the exception of polyester resin putty used to assemble fiberglass parts; and

6. Closed molding operations. This exemption does not apply to an open molding resin and gel coat operation that precedes a closed molding operation, such as the application of a gel coat or skin coat layer.

(d) Except as provided at (c) above, the owner or operator of any open molding resin and gel coat operation at any fiberglass boat manufacturing facility to which this section applies shall ensure (d)1, 2, or 3 below. For compliance determination, any non-monomer VOC content of a resin or gel coat in excess of five percent shall be added to the monomer VOC content.

1. The monomer VOC content (percent by weight) in any resin or gel coat purchased for any open molding resin and gel coat operation, or purchased for any

other molding operation that is not a closed molding operation, such as a vacuum bagging operation, does not exceed:

i. The maximum monomer VOC content (percent by weight) limit for the material and application method listed in Table 14A; or

ii. The weighted average monomer VOC content (percent by weight) limit as determined by Equation 14A for the material and application method listed in Table 14A.

TABLE 14A

MAXIMUM MONOMER VOC CONTENT LIMITS FOR OPEN MOLDING RESIN AND GEL COAT OPERATIONS WHERE COMPLIANCE IS DETERMINED PURSUANT TO N.J.A.C. 7:27-16.14(d)1

Material	Resin Application Method	Weighted Average Monomer VOC Content Limit (Percent by Weight)
Production resin	Atomized (spray)	28
Production resin	Nonatomized	35
Pigmented gel coat	Any method	33
Clear coat gel	Any method	48
Tooling resin	Atomized	30
Tooling resin	Nonatomized	39

Tooling gel coat	**Any method**	**40**

EQUATION 14A

$$\textbf{Weighted Average Monomer VOC Content} = \frac{\sum_{i=1}^{n}(\mathbf{M}_i\mathbf{VOC}_i)}{\sum_{i=1}^{n}(\mathbf{M}_i)}$$

Where:

M_i = the mass of open molding resin or gel coat, *i*, purchased in the past 12 months in an operation, in megagrams;

VOC_i = the monomer VOC content, in percent by weight, of open molding resin or gel coat, *i,* purchased in the past 12 months in an operation; and

n = the number of different open molding resins or gel coats purchased in the past 12 months in an operation;

2. The VOC emissions from each open molding resin and gel coat operation, and from any other molding operation that is not a closed molding operation, such as a vacuum bagging operation, do not exceed a facility-specific monomer VOC emission limit established pursuant to (d)2i through iii below, per 12-month period, of the mass of each material purchased, as follows:

i. Use Equation 14B to establish the facility-specific monomer VOC emission limit;

ii. For any open molding resin and gel coat operation included in Equation 14B, use Equation 14C to demonstrate that the monomer VOC mass

emissions from the operation do not exceed the facility-specific monomer VOC emission limit calculated using Equation 14B for the same 12-month period. Conduct this demonstration at the end of the first 12-month period and at the end of every subsequent month for only those operations and materials included in the average; and

iii. For each open molding resin and gel coat operation included in Equation 14B, use Equation 14D to compute the weighted-average monomer VOC emission rate per 12-month period for each open molding resin and gel coat operation included in the average for use in Equation 14C; or

3. A VOC control apparatus installed to control the VOC emissions from an open molding resin operation, or gel coat, prevents VOC emissions from exceeding the maximum facility-specific monomer VOC mass emission limit established using Equation 14B in accordance with (d)2i above.

EQUATION 14B:

$$FSMVEL = 46(M_R) + 159(M_{PG}) + 291(M_{CG}) + 54(M_{TR}) + 214(M_{TG})$$

Where:

FSMVEL (facility-specific monomer VOC emission limit) = the total allowable monomer VOC that can be emitted from an open molding resin and gel coat operation included in the average, in kilograms per 12-month period;

M_R = the mass, in megagrams, of production resin purchased in the past 12 months, excluding materials exempted in (c) above;

M_{PG} = the mass, in megagrams, of pigmented gel coat purchased in the past 12 months, excluding materials exempted in (c) above;

M_{CG} = the mass, in megagrams, of clear gel coat purchased in the past 12 months, excluding materials exempted in (c) above;

M_{TR} = the mass, in megagrams, of tooling resin purchased in the past 12 months, excluding materials exempted in (c) above;

M_{TG} = the mass, in megagrams, of tooling gel coat purchased in the past 12 months, excluding materials exempted in (c) above; and

The numerical coefficient associated with each term on the right-hand side of Equation 14B is the allowable monomer VOC emission rate for that material in units of kilograms of monomer of VOC per megagram of material purchased. For example, "46" means 46 kilograms (kg) of monomer VOC per megagram (Mg) of resin purchased.

EQUATION 14C:

$$\text{Monomer VOC emissions} = (PV_R)(M_R) + (PV_{PG})(M_{PG}) + (PV_{CG})(M_{CG}) + (PV_{TR})(M_{TR}) + (PV_{TG})(M_{TG})$$

Where:

Monomer VOC emissions = the monomer VOC emissions calculated using the monomer VOC emission equations for each operation included in the average, in kilograms;

PV_R = the weighted-average monomer VOC emission rate for production resin purchased in the past 12 months, in kilograms per megagram;

M_R = the mass of production resin purchased in the past 12 months, in megagrams;

PV_{PG} = the weighted-average monomer VOC emission rate for pigmented gel coat purchased in the past 12 months, in kilograms per megagram;

M_{PG} = the mass of pigmented gel coat purchased in the past 12 months, in megagrams;

PV_{CG} = the weighted-average monomer VOC emission rate for clear gel coat purchased in the past 12 months, in kilograms per megagram;

M_{CG} = the mass of clear gel coat purchased in the past 12 months, in megagrams;

PV_{TR} = the weighted-average monomer VOC emission rate for tooling resin purchased in the past 12 months, in kilograms per megagram;

M_{TR} = the mass of tooling resin purchased in the past 12 months, in megagrams;

PV_{TG} = the weighted-average monomer VOC emission rate for tooling gel coat purchased in the past 12 months, in kilograms per megagram; and

M_{TG} = the mass of tooling gel coat purchased in the past 12 months, in megagrams.

EQUATION 14D

$$\mathbf{PV_{OP}} = \frac{\sum_{i=1}^{n}(\mathbf{M}_i\mathbf{PV}_i)}{\sum_{i=1}^{n}(\mathbf{M}_i)}$$

Where:

PV_{OP} = the weighted-average monomer VOC emission rate for each open molding operation (PV_R, PV_{PG}, PV_{CG}, PV_{TR}, and PV_{TG}) included in the average, in kilograms of monomer VOC per megagram of material applied. As shown in

Equation 14D, PV_{OP} equals the sum of the products of M_i and PV_i for open molding resin or gel coats, one through n, divided by M_i one through n;

n = the number of different open molding resins and gel coats purchased within an operation in the past 12 months;

M_i = the mass of resin or gel coat, *i*, purchased within an operation in the past 12 months, in megagrams; and

PV_i = the monomer VOC emission rate for resin or gel coat, *i*, purchased within an operation in the past 12 months, in kilograms of monomer VOC per megagram of material applied. PV_i is computed using the equations in Table 14B.

Table 14B

MONOMER VOC EMISSION RATE FORMULAS FOR OPEN MOLDING OPERATIONS

WHERE COMPLIANCE IS DETERMINED PURSUANT TO N.J.A.C. 7:27-16.14(d)2

Material	Resin Application Method	Monomer VOC Emission Rate (PV*i*) Formula[1]
Production resin, tooling resin	Atomized	$0.014 \times (\text{resin VOC})^{2.425}$
	Atomized, plus vacuum bagging with roll-out	$0.01185 \times (\text{resin VOC})^{2.425}$
	Atomized, plus vacuum bagging without roll-out	$0.00945 \times (\text{resin VOC})^{2.425}$
	Nonatomized	$0.014 \times (\text{resin VOC})^{2.275}$

	Nonatomized, plus vacuum bagging with roll-out	**0.0110 x (resin VOC)$^{2.275}$**
	Nonatomized, plus vacuum bagging without roll-out	**0.0076 x (resin VOC)$^{2.275}$**
Pigmented gel coat, clear gel coat, tooling gel coat	**All methods**	**0.445 x (gel coat VOC)$^{1.675}$**

[1] Resin VOC and gel coat VOC refer to the monomer VOC content as supplied, expressed as a percent by weight value between 0 and 100 percent.

(e) Except as provided at (c) above, the owner or operator of any fiberglass boat manufacturing facility, when using filled production resin or filled tooling resin shall:

1. Determine the filled resin monomer VOC emission rate (PV_F) using Equation 14E:

EQUATION 14E

$$PV_F = \frac{(100 - \text{Percent Filler})}{(100)} * PV_U$$

Where:

PV_F = the as-applied monomer VOC emission rate for the filled production resin or tooling resin, in kilograms monomer VOC per megagram of filled resin, per 12-month period, based on monthly purchase records. As shown in Equation 14E,

PV_F shall be equal to 100 minus the weight-percent of filler, divided by 100, with the entire quantity multiplied by PV_U;

PV_U = the monomer VOC emission rate for the neat (unfilled) resin, before filler is added, as calculated using the formulas in Table 14B, per 12-month period, based on monthly purchase records; and

Percent Filler = the weight-percent of filler in the as-applied filled resin system;

2. Ensure that the PV_F determined in (e)1 above does not exceed the filled resin monomer VOC emission limits in Table 14C, where the limit is in kilograms monomer VOC per megagram of filled resin, as applied;

3. Ensure that the non-monomer VOC content of each filled resin does not exceed five percent; and

4. If filled resin is included in the emission averaging procedure in Equation 14D above, then use the value of PV_F calculated using Equation 14E above for the value of PV_i in Equation 14D above.

Table 14C

FILLED RESIN MONOMER VOC EMISSION LIMITS

WHERE COMPLIANCE IS DETERMINED PURSUANT TO N.J.A.C. 7:27-16.14(e)

Resin	Emission limit

	(in kilograms monomer VOC per megagram of filled resin on a 12-month rolling average, based on monthly purchase records)
Filled production resin	**46**
Filled tooling resin	**54**

(f) The owner or operator of a fiberglass boat manufacturing facility to which this section applies shall:

1. Use only industrial cleaning solvents that:

i. Contain no more than five percent VOC by weight; or

ii. Have a composite vapor pressure of no more than 0.5 millimeters of mercury at 68 degrees Fahrenheit;

2. Use only non-VOC solvents to remove cured resin and gel coat from application equipment; and

3. For all resin and gel coat containers with a capacity of 55 gallons or more, including those used for on-site mixing of putties and polyester resin putties, cover at all times with no visible gaps, except:

i. When materials are being manually added or removed from a container; and

ii. When mixing equipment is being placed into or removed from a container.

(g) An owner or operator of a facility subject to (d) or (e) above shall keep the following records in accordance with N.J.A.C. 7:27-16.22(a):

1. Information on each polyester resin material purchased each month including, at a minimum, the following:

i. The manufacturer's name;

ii. The type of polyester resin material (for example, production resin, pigmented gel coat, clear gel coat, tooling resin, or tooling gel coat);

iii. The amount of polyester resin material purchased;

iv. The percent by weight of monomer VOC content for each polyester resin material;

v. The percent by weight of the non-monomer VOC content or the total percent by weight of the VOC content;

vi. The type of application method(s) used; and

vii. The methodology being used to demonstrate that the polyester resin material is compliant with (d) or (e) above;

2. Information on the use of all monthly calculations performed to demonstrate compliance with the following, as applicable:

i. N.J.A.C. 7:27-16.14(d)1ii, with the use of Equation 14A;

ii. N.J.A.C. 7:27-16.14(d)2, with the use of Equations 14B, 14C, and 14D, and Table 14B; and

iii. N.J.A.C. 7:27-16.14(e), with the use of Equations 14D and 14E;

3. For each industrial cleaning solvent purchased for application equipment cleaning, either the VOC content percent by weight or composite vapor pressure in millimeters of mercury, whichever is applicable;

4. The type of solvent purchased each month to remove cured resin and gel coat from application equipment;

5. Records of covering all resin and gel coat containers as required in (f)3 above; and

6. Monthly amount of production and tooling resins, and pigmented, clear and tooling gel coat purchased for part or mold repair and touch-up of fiberglass that do not meet any of the requirements in (d) above.

(h) The owner or operator of a source operation that has a thermal oxidizer used to control the emission of VOCs at a fiberglass boat manufacturing facility to which this section applies shall maintain records in accordance with N.J.A.C. 7:27-16.16(g)2.

(i) The owner or operator of a source operation that has a control apparatus using carbon or other adsorptive material to control the emission of VOCs at a fiberglass boat manufacturing facility to which this section applies shall maintain records in accordance with N.J.A.C. 7:27-16.16(g)3.

(j) The owner or operator of a fiberglass boat manufacturing facility to which this section applies shall, upon the request of the Department, record any other operating parameter

relevant to the prevention or control of air contaminant emissions from the manufacturing of fiberglass boat materials or control apparatus, pursuant to N.J.A.C. 7:27-16.22.

7:27-16.15 [(Reserved)] **Miscellaneous metal and plastic parts coatings**

(a) This section applies to all source operations at a facility whose cumulative actual VOC emissions exceed 2.7 tons during any consecutive 12-month period from all miscellaneous metal and plastic parts surface coating operations, including related cleaning activities, but shall not apply to a surface coating operation that uses exclusively powder coating.

(b) The owner or operator of a commercial pleasure craft surface coating operation to which this section applies shall ensure that:

1. The pleasure craft surface coating operation complies with the following VOC emission standard:

i. The VOC content of any surface coating formulation as applied, excluding repair or touch-up coatings, does not exceed the applicable maximum allowable VOC content specified in Table 15A;

ii. The pleasure craft surface coating operation is served by a VOC control apparatus that has an overall control efficiency of at least 90 percent; or

iii. The pleasure craft surface coating operation is served by a VOC control apparatus that has a minimum overall control efficiency as determined by Equation 15A using the applicable coating category in Table 15A.

2. A pleasure craft surface coating operation complying with (b)1i or iii above, except an extreme high gloss coating (craft) operation, shall use one or more of the

following application methods at all times and shall not use any other application method:

i. Metal and plastic parts application methods; or

ii. Another coating application method capable of achieving a transfer efficiency equivalent to or better than that achieved by HVLP spraying and approved by the EPA.

EQUATION 15A:

$$OCE = \{1 - [(VOC)_c * (V_n)_a / (VOC)_a * (V_n)_c]\} * 100$$

Where:

OCE = overall control efficiency;

$(VOC)_c$ = maximum allowable VOC content per volume of coating (pound per gallon or kilogram per liter), minus water and exempt organic substances, for the applicable coating category in Table 15A, 15B, 15C, or 15D;

$(VOC)_a$ = VOC content per volume of coating (pound per gallon or kilogram per liter), minus water and exempt organic substances, as applied;

$(V_n)_c$ = the volumetric fraction of solids (expressed as gallon of solids per gallon of coating or liter of solids per liter of coating) minus water and exempt organic substances, for the applicable coating category in Table 15A, 15B, 15C, or 15D, and expressed as $1 - (V_v)_c$;

$(V_v)_c$ = is the volumetric fraction of VOC (expressed as gallon of VOC per gallon of coating or liter of VOC per liter of coating) minus water and exempt organic

substances for the applicable coating category in Table 15A, 15B, 15C, or 15D, and expressed as $\{(VOC)_c/d_{VOC}\}$;

$(V_n)_a$ = the volumetric fraction of solids (expressed as gallon of solids per gallon of coating or liter of solids per liter of coating) minus water and exempt organic substances as applied, and expressed as $1 - (V_v)_a$;

$(V_v)_a$ = is the volumetric fraction of VOC (expressed as gallon of VOC per gallon of coating or liter of VOC per liter of coating) minus water and exempt organic substances as applied, and expressed as $\{(VOC)_a/d_{VOC}\}$; and

d_{VOC} = the density (expressed as pound per gallon or kilogram per liter) of the VOC as applied minus water and exempt organic substances.

Table 15A

PLEASURE CRAFT SURFACE COATING FORMULATION VOC CONTENT LIMITS

	Maximum Allowable VOC Content per Volume of Coating (minus water and exempt organic substances)	
Coating Category	**Pounds per gallon**	**Kilograms per liter**
Extreme high gloss topcoat (craft)	**5.0**	**0.60**
High gloss topcoat (craft)	**3.5**	**0.42**
Pre-treatment wash primer	**6.5**	**0.78**
Finish primer/surfacer	**3.5**	**0.42**

High build primer/surfacer	**2.8**	**0.34**
Aluminum substrate antifoulant coating	**4.7**	**0.56**
Other substrate antifoulant coating	**3.3**	**0.40**
Antifouling sealer/tiecoat	**3.5**	**0.42**
All other pleasure craft surface coating formulations	**3.5**	**0.42**

(c) Except as set forth in (c)3 below, the owner or operator of a metal parts and products surface coating operation to which this section applies shall ensure that:

1. The metal parts and products surface coating operation complies with the following VOC emission standard:

i. The VOC content of any surface coating formulation, as applied, does not exceed the applicable maximum allowable VOC content, if any, specified in Table 15B;

ii. The metal parts and products surface coating operation is served by a VOC control apparatus that has an overall control efficiency of at least 90 percent; or

iii. The metal parts and products surface coating operation is served by a VOC control apparatus that has a minimum overall control efficiency as determined by Equation 15A above using the applicable coating category in Table 15B.

2. The metal parts and products surface coating operation, except touch-up coatings, repair coatings, or textured finishes, complying with (c)1i or iii above, shall

use one or more of the following application methods at all times and shall not use any other application method:

i. A metal and plastic parts application method; or

ii. Another coating application method capable of achieving a transfer efficiency equivalent to or better than that achieved by HVLP spraying and approved by the EPA.

3. The provisions of (c)1 and 2 above shall not apply to the following metal parts and products surface coating operations:

i. Stencil coatings (metal and plastic);

ii. Safety-indicating coatings;

iii. Solid-film lubricants;

iv. Electric-insulating and thermal-conducting coatings;

v. Flexible or rigid magnetic data storage disc coatings;

vi. Plastic extruded onto metal parts to form a coating; and

vii. Any military specification coating that has been formulated to meet a higher, less stringent VOC content limit than the maximum allowable for the coating, as identified at Table 15B.

Table 15B

METAL PARTS AND PRODUCTS VOC CONTENT LIMITS

	Maximum Allowable VOC Content per Volume of Coating

(minus water and exempt organic substances)

Coating Category	Air-Dried Coating		Baked Coating	
	Pounds per gallon	Kilograms per liter	Pounds per gallon	Kilograms per liter
General, one-component coating	2.8	0.34	2.3	0.28
General, multi-component coating	2.8	0.34	2.3	0.28
Camouflage coating	3.5	0.42	3.5	0.42
Electric-insulating varnish	3.5	0.42	3.5	0.42
Etching filler	3.5	0.42	3.5	0.42
Extreme high gloss coating (metal)	3.5	0.42	3.0	0.36
Extreme performance coating	3.5	0.42	3.0	0.36
Heat-resistant coating	3.5	0.42	3.0	0.36
High performance architectural coating	6.2	0.74	6.2	0.74
High-temperature coating	3.5	0.42	3.5	0.42
Metallic coating	3.5	0.42	3.5	0.42
Military specification coating	2.8	0.34	2.3	0.28
Mold-seal coating	3.5	0.42	3.5	0.42
Pan-backing coating	3.5	0.42	3.5	0.42
Prefabricated architectural multi-component coating	3.5	0.42	2.3	0.28
Prefabricated architectural one-component coating	3.5	0.42	2.3	0.28

Pretreatment coating	**3.5**	**0.42**	**3.5**	**0.42**
Repair and touch-up coating	**3.5**	**0.42**	**3.0**	**0.36**
Silicone-release coating	**3.5**	**0.42**	**3.5**	**0.42**
Solar-absorbent coating	**3.5**	**0.42**	**3.0**	**0.36**
Vacuum-metalizing (metal and plastic)	**3.5**	**0.42**	**3.5**	**0.42**
Drum coating, new, exterior	**2.8**	**0.34**	**2.8**	**0.34**
Drum coating, new, interior	**3.5**	**0.42**	**3.5**	**0.42**
Drum coating, reconditioned, exterior	**3.5**	**0.42**	**3.5**	**0.42**
Drum coating, reconditioned, interior	**4.2**	**0.5**	**4.2**	**0.50**

(d) Except as set forth in (d)3 below, the owner or operator of a plastic parts and products surface coating operation to which this section applies shall ensure that:

1. The plastic parts and products surface coating operation complies with the following VOC emission standard:

i. The VOC content of a surface coating formulation, as applied, does not exceed the applicable maximum allowable VOC content, if any, specified in Table 15C;

ii. The plastic parts and products surface coating operation is served by a VOC control apparatus that has an overall control efficiency of at least 90 percent; or

iii. The plastic parts and products surface coating operation is served by a VOC control apparatus that has a minimum overall control efficiency as

determined by Equation 15A above using the applicable coating category in Table 15C.

2. The plastic parts and products surface coating operation, except an airbrush operation using five gallons or less per 12-month period of coating, complying with (d)1i or iii above, shall use one or more of the following application methods at all times and shall not use any other application method:

i. A metal and plastic parts application method; or

ii. Another coating application method capable of achieving a transfer efficiency equivalent to or better than that achieved by HVLP spraying and approved by the EPA.

3. The provisions of (d)1 above shall not apply to the following plastic parts and products surface coating operations:

i. Touch-up and repair coatings;

ii. Stencil coats (automotive/transportation) applied on clear or translucent substrates;

iii. Clear or translucent coatings;

iv. Coatings applied at a paint-manufacturing facility while conducting performance tests on the coatings;

v. An individual coating category used in volumes of less than 50 gallons in any 12-month period if substitute compliant coatings are not available, provided that the total usage of all such coatings does not exceed 200 gallons per year, per facility;

vi. Reflective coating applied to highway cones;

vii. Mask coatings that are less than 0.5 millimeter thick (dried) and the area coated is less than 25 square inches;

viii. EMI/RFI shielding coatings; and

ix. Heparin-benzalkonium chloride (HBAC)-containing coatings applied to medical devices, provided that the total usage of all such coatings does not exceed 100 gallons per year per facility.

TABLE 15C

PLASTIC PARTS AND PRODUCTS SURFACE COATING

FORMULATION VOC CONTENT LIMITS

	Maximum Allowable VOC Content per Volume of Coating (minus water and exempt organic substances)	
Coating Category	**Pounds per gallon**	**Kilograms per liter**
General, one-component	**2.3**	**0.28**
General, multi-component	**3.5**	**0.42**
Electric-dissipating coating and shock-free coating	**6.7**	**0.80**
Extreme performance	**3.5 (two-pack coatings)**	**0.42 (two-pack coatings)**
Metallic coating	**3.5**	**0.42**
Military specification coating	**2.8 (one-pack), 3.5 (two-pack)**	**0.34 (one-pack), 0.42 (two-pack)**

Mold-seal coating	**6.3**	**0.76**
Multi-colored coatings	**5.7**	**0.68**
Optical coatings	**6.7**	**0.80**
Vacuum-metalizing (metal and plastic)	**6.7**	**0.80**

(e) Except as set forth in (e)3 below, the owner or operator of an automotive/transportation or business machine plastic parts and products surface coating operation to which this section applies shall ensure that:

1. The automotive/transportation and business machine plastic parts and products surface coating operation complies with the following VOC emission standard:

i. The VOC content of a surface coating formulation, as applied, and excluding repair and touch-up coatings, does not exceed the applicable maximum allowable VOC content, if any, specified in Table 15D;

ii. The automotive/transportation and business machine plastic parts and products surface coating operation is served by a VOC control apparatus that has an overall control efficiency of at least 90 percent; or

iii. The automotive/transportation and business machine plastic parts and products surface coating operation is served by a VOC control apparatus that has a minimum overall control efficiency as determined by Equation 15A above using the applicable coating category in Table 15D.

2. The automotive/transportation or business machine plastic parts and products surface coating operation, complying with (e)1i or iii above, shall use one or more of

the following application methods at all times and shall not use any other application method:

i. A metal and plastic parts application method; or

ii. Another coating application method capable of achieving a transfer efficiency equivalent to or better than that achieved by HVLP spraying and approved by the EPA.

3. The provisions of (e)1 above shall not apply to the following automotive/transportation and business machine plastic parts and products surface coating operations:

i. Texture coatings;

ii. Vacuum metalizing (automotive/transportation) coatings;

iii. Gloss reducers (applied at a thickness of no more than 0.5 mils of coating solid);

iv. Texture topcoats;

v. Adhesion primers;

vi. Electrostatic prep coatings;

vii. Resist coatings; and

viii. Stencil coats (automotive/transportation).

TABLE 15D

AUTOMOTIVE/TRANSPORTATION AND BUSINESS MACHINE PLASTIC PARTS AND PRODUCTS SURFACE COATING FORMULATION VOC CONTENT LIMITS

	Maximum Allowable VOC Content per Volume of Coating (minus water and exempt organic substances)	
Coating Category	**Pounds per gallon**	**Kilograms per liter**
Automotive/transportation coatings[1]:		
High bake coatings – interior and exterior parts		
Flexible coating primer	**4.5**	**0.54**
Non-flexible coating primer	**3.5**	**0.42**
Base coats	**4.3**	**0.52**
Clear coating	**4.0**	**0.48**
Non-basecoat/clear coating	**4.3**	**0.52**
Automotive/transportation coatings[1]:		
Low bake/air-dried coatings – exterior parts		
Primers	**4.8**	**0.58**
Basecoat	**5.0**	**0.60**
Clear coating	**4.5**	**0.54**
Non-basecoat/clear coating	**5.0**	**0.60**
Automotive/transportation coatings[1]:	**5.0**	**0.60**

Low bake/air-dried coatings – interior parts		
Automotive/transportation coatings[1]:		
Touch-up and repair coatings	**5.2**	**0.62**
Business machine coatings		
Primers	**2.9**	**0.35**
Topcoat	**2.9**	**0.35**
Texture coat	**2.9**	**0.35**
Fog coat (Applied at a thickness no more than 0.5 mils of coating solids)	**2.2**	**0.26**
Touch-up and repair	**2.9**	**0.35**

[1] For red, yellow, and black automotive coatings, except touch-up and repair coatings, the limit shall be determined by multiplying the appropriate limit in Table 15D by 1.15.

(f) The owner or operator of a motor vehicle material surface coating operation to which this section applies shall ensure that:

1. The motor vehicle material surface coating operation complies with the following VOC emission standard:

i. The VOC content of a surface coating formulation, as applied, does not exceed the applicable maximum allowable VOC content, if any, specified in Table 15E; or

ii. The motor vehicle material surface coating operation is served by a VOC control apparatus that has an overall control efficiency of at least 90 percent.

2. The motor vehicle materials surface coating operation, complying with (f)1i above shall use one or more of the following application methods at all times and shall not use any other application method:

i. A metal and plastic parts application method; or

ii. Another coating application method capable of achieving a transfer efficiency equivalent to or better than that achieved by HVLP spraying and approved by the EPA.

TABLE 15E

MOTOR VEHICLE MATERIALS SURFACE COATING

FORMULATION VOC CONTENT LIMITS

	Maximum Allowable VOC Content per Volume of Coating (minus water and exempt organic substances)	
Coating Category	**Pounds per gallon**	**Kilograms per liter**
Motor vehicle cavity wax	**5.4**	**0.65**
Motor vehicle sealer	**5.4**	**0.65**
Motor vehicle deadener	**5.4**	**0.65**
Motor vehicle gasket/gasket sealing material	**1.7**	**0.20**

Motor vehicle underbody coating	**5.4**	**0.65**
Motor vehicle trunk interior coating	**5.4**	**0.65**
Motor vehicle bedliner	**1.7**	**0.20**
Motor vehicle lubricating wax/compound	**5.8**	**0.70**

(g) The owner or operator of a facility with a metal or plastic parts and products surface coating operation to which this section applies shall implement the following best management practices at the facility, and shall record and maintain on site the documentation of these best management practices, pursuant to N.J.A.C. 7:27-16.22:

1. Each container of VOC-containing coating, thinner, cleaning materials, or used shop towels shall have a cover that is closed, except when in use or when material is being added to or removed from the container, which shall prevent the contents from coming in contact with and being exposed to the atmosphere;

2. A mixing vessel that contains any VOC-containing material shall have a cover that is closed, except when in use or when materials are being added to or removed from the vessel;

3. All VOC-containing coatings, thinners, and cleaning materials shall be conveyed in closed containers or pipes, which shall prevent the contents from coming in contact with and being exposed to the atmosphere; and

4. All spills of VOC-containing coatings, thinners, and cleaning materials shall be cleaned up immediately.

(h) The owner or operator of a surface coating operation implementing (b)1i, (c)1i, (d)1i, (e)1i, or (f)1i above, shall maintain records of the VOC content of each surface coating formulation as applied, as follows:

1. **Pounds of VOC per gallon of coating or kilograms of VOC per liter of coating;**
2. **The daily volume of each surface coating formulation applied; and**
3. **The calculations performed pursuant to (k) below.**

(i) The owner or operator of a surface coating operation implementing (b)1ii, (c)1ii, (d)1ii, or (e)1ii above, shall maintain records as follows:

1. **All of the values used in Equation 15A to determine the overall control efficiency;**
2. **The calculated overall control efficiency;**
3. **The daily volume of each surface coating formulation applied; and**
4. **The calculations performed pursuant to (j) below.**

(j) For the purpose of determining compliance with the limits set forth in (b)1, (c)1, (d)1, (e)1, and (f)1 above, the VOC content of a coating applied, or to be applied, shall be calculated in accordance with Equation 15B below. For purposes of Equation 15B, the method for determining the VOC content of a given coating shall be Method 24 of Appendix A at 40 CFR Part 60, incorporated herein by reference. The owner or operator may use an alternative method for determining compliance (for example, quality assurance checks, recordkeeping, standard formulation sheets, or safety data sheets); however, if there are any inconsistencies between the results of Method 24 and the alternative method, the Method 24 test results shall govern.

EQUATION 15B:

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

Where:

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

W_v = Mass of total volatiles, in pounds or kilograms, as applicable;

W_a = Mass of total VOC in additives or other materials that are added to the coating prior to its application, in pounds or kilograms, as applicable;

W_w = Mass of the water in coating (if any), in pounds or kilograms, as applicable;

W_n = Mass of any non-VOC solvent in the coating, in pounds or kilograms, as applicable;

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

V_a = Volume of VOC-containing additives or other materials that are added to the coating prior to its application, in gallons or liters, as applicable;

V_w = Volume of the water in coating (if any), in gallons or liters, as applicable; and

V_n = Volume of any non-VOC solvent in the coating, in gallons or liters, as applicable.

(k) The owner or operator of a source operation that has a thermal oxidizer used to control the emission of VOCs shall maintain records in accordance with N.J.A.C. 7:27-16.16(g)2.

(l) The owner or operator of a source operation that has a control apparatus using carbon or other adsorptive material used to control the emission of VOCs shall maintain records in accordance with N.J.A.C. 7:27-16.16(g)3.

(m) The owner or operator of a source operation that is exempt from the VOC limitations pursuant to (c)3, (d)3, and (e)3 above shall maintain records that demonstrate that the source operation qualifies for the exemption.

(n) The owner or operator of a source operation to which this section applies shall, upon the request of the Department, record any other operating parameter relevant to the prevention or control of air contaminant emissions from the miscellaneous metal and plastic parts coatings or control apparatus, pursuant to N.J.A.C. 7:27-16.22.

7:27-16.16 Other source operations

(a) The provisions of this section apply to any source operation, except source operations in the following categories (Note: Source operations in those categories designated by an asterisk (*) [which] **that** have the potential to emit three pounds per hour or more of VOC and [which] **that** are located at a major VOC facility are regulated by N.J.A.C. 7:27-16.17.):

1. - 13. (No change.)

14. *****Fiberglass manufacturing furnaces;

15. *****Glass manufacturing furnaces;

16. *****Fuel burning for steam generation for space heating;

17. *****Sulfuric acid plant burners;

18. Any source operation regulated pursuant to N.J.A.C. 7:27-**16.14 or** 16.17; and

19. (No change.)

(b) Source operations to which this section apply are not limited to those involved in manufacturing and include, without limit, the following: agitators, autoclaves, bakery ovens, blenders, centrifuges, distillation processes, driers, extruders, fermentation processes, fiberglass boat or vessel manufacturing operations**, except any source operation regulated pursuant to N.J.A.C. 7:27-16.14**, fiberglass product manufacturing operations, foam blowing operations, fumigation chambers, mills, mixers, ovens, reactors, receivers, roasters, sterilization operations, and synthetic fiber manufacturing operations. The provisions of this section do not apply to any insignificant source operation as defined in N.J.A.C. 7:27-8.2 or 22.1.

(c) – (g) (No change.)

7:27-16.24 [(Reserved)] **Industrial cleaning**

(a) Except as provided at (b) below, this section applies to industrial cleaning at a facility that purchases for use more than 855 gallons of industrial cleaning solvents, in aggregate, during any 12-month period.

(b) This section does not apply to the use or purchase of industrial cleaning solvents at the following source operations:

1. **Mobile equipment repair and refinishing;**
2. **Stationary storage tank;**
3. **Open top tank and solvent cleaning;**
4. **Aerospace coating;**
5. **Auto and light-duty truck assembly;**
6. **Fiberglass boat manufacturing;**
7. **Flexible packaging printing;**
8. **Large appliance coating;**
9. **Letterpress printing;**
10. **Lithographic printing;**
11. **Metal and wood furniture coating;**
12. **Miscellaneous metal parts coating;**
13. **Paper coating;**
14. **Plastic parts coating;**
15. **Shipbuilding and repair coating;**
16. **Electrical and electronic component manufacturing;**
17. **Precision optics manufacturing;**
18. **Numismatic die manufacturing;**
19. **Research and development laboratory;**
20. **Medical device and pharmaceutical manufacturing;**
21. **Quality assurance testing for coatings, inks, and adhesives;**

22. Architectural coating;

23. Metal container, closure, and coil coating;

24. Graphic arts printing and coating, except screen printing;

25. Magnet wire coating;

26. Semiconductor wafer fabrication manufacturing;

27. Flexible magnetic data storage disc manufacturing;

28. Rigid magnetic data storage disc manufacturing;

29. Stripping of cured inks, coatings, and adhesives;

30. Flat wood paneling and printed hardwood coating;

31. Coil coating;

32. Polyester resin operations;

33. Miscellaneous industrial adhesives;

34. Wood products coating; and

35. Marine vessel coating.

(c) The owner or operator of an industrial cleaning operation subject to this section, other than at a digital printing operation, or at an adhesive, surface coating formulation, ink, or resin manufacturing facility, shall implement at least one of the following VOC control measures:

1. The use of only industrial cleaning solvents that meet the maximum VOC content listed in Table 24A;

2. The use of only industrial cleaning solvents that have composite vapor pressures equal to or less than eight millimeters of mercury (mmHg) at 20 degrees Celsius; or

3. The installation, operation, and maintenance, in accordance with the manufacturer's recommendations, of air pollution control equipment that reduces uncontrolled VOC emissions to the atmosphere from industrial cleaning by an overall control efficiency of 85 percent or more.

TABLE 24A

MAXIMUM ALLOWABLE VOC CONTENT OF INDUSTRIAL CLEANING SOLVENTS

Type of Industrial Cleaning	Maximum Allowable VOC Content (grams per liter)
Cleaning of equipment used in screen printing	500
All other types of industrial cleaning	50

(d) The owner or operator of a facility that conducts industrial cleaning subject to this section shall implement the following best management practices at such a facility and shall record and maintain on site the documentation of these best management practices, pursuant to N.J.A.C. 7:27-16.22:

1. All VOC-containing cleaning materials and VOC-containing used shop towels shall be kept in closed containers when not in use, which shall prevent the contents from coming in contact with and being exposed to the atmosphere;

2. Each container of VOC-containing cleaning materials shall have a cover that is kept closed, except when material is being added to or removed from the container,

which shall prevent the contents from coming in contact with and being exposed to the atmosphere;

3. Any spill of VOC-containing coatings, thinners, or cleaning materials shall be cleaned up immediately; and

4. All VOC-containing cleaning materials shall be conveyed in closed containers or pipes, which shall prevent the contents from coming in contact with and being exposed to the atmosphere.

(e) The owner or operator of a facility that conducts industrial cleaning subject to this section shall maintain, on site, a record of the purchased industrial cleaning solvents, pursuant to N.J.A.C. 7:27-16.22, as follows:

1. The name and address of the person selling the industrial cleaning solvent and the date of the sale. An invoice, bill of sale, or a certificate that corresponds to one or more sales may be used to satisfy this requirement, if it includes the seller's name and address;

2. A list of VOCs and information concerning their concentration in the industrial cleaning solvent;

3. The SDS for each industrial cleaning solvent purchased;

4. The product number assigned to the industrial cleaning solvent by the manufacturer; and

5. For each industrial cleaning solvent purchased, either:

i. The vapor pressure of the industrial cleaning solvent measured in millimeters of mercury at 20 degrees Celsius (68 degrees Fahrenheit); or

ii. The VOC content in grams per liter.

(f) The owner or operator of a source operation that has a thermal oxidizer used to control the emission of VOCs shall maintain records in accordance with N.J.A.C. 7:27-16.16(g)2.

(g) The owner or operator of a source operation that has a control apparatus using carbon or other adsorptive material used to control the emission of VOCs shall maintain records in accordance with N.J.A.C. 7:27-16.16(g)3.

(h) The owner or operator of a source operation to which this section applies shall, upon the request of the Department, record any other operating parameter relevant to the prevention or control of air contaminant emissions from the use of industrial cleaning solvents or control apparatus, pursuant to N.J.A.C. 7:27-16.22.

7:27-16.27 Exceptions

(a) (No change.)

(b) The provisions of this subchapter shall not apply to the emissions of VOC from the following source operations:

1. Natural gas pipelines that are not major VOC facilities, with the exception of blowdown events as set forth in N.J.A.C. 7:27-16.21; [and]
2. Open burning[.]**; and**
3. **Aerosol coating products.**

SUBCHAPTER 19. CONTROL AND PROHIBITION OF AIR POLLUTION FROM OXIDES OF NITROGEN

7:27-19.2 Purpose, scope**,** and applicability

(a) (No change.)

(b) The following types of equipment and source operations are subject to the provisions of this subchapter:

1. - 10. (No change.)

11. Any sewage sludge incinerator; [and]

12. Any other equipment or source operation not specifically listed at (b)1 through 11 above **or (b)13 and 14** or (c) below that has the potential to emit more than 10 tons of NO_x per year[.]**;**

13. Any simple cycle combustion turbine combusting natural gas and compressing gaseous fuel at a major NO_x facility; and

14. Any stationary reciprocating engine capable of producing an output of 200 bhp or more but less than 500 bhp, combusting natural gas, and compressing gaseous fuel at a major NO_x facility.

(c)-(f) (No change.)

7:27-19.5 Stationary combustion turbines

(a)-(k) (No change.)

(l) Beginning (two years from the effective date of this amendment), any simple cycle combustion turbine combusting natural gas and compressing gaseous fuel at a major NO_x

facility shall not emit more than 42 parts per million by volume, dry basis, (ppmdv) of NO_x, corrected to 15 percent oxygen.

7:27-19.8 Stationary reciprocating engines

(a) – (f) (No change.)

(g) Beginning (two years from the effective date of this amendment), the owner or operator of a two-stroke lean-burn engine capable of producing an output of 200 bhp or more but less than 500 bhp, combusting natural gas, and compressing gaseous fuel at a major NO_x facility shall cause it to emit no more than 3.0 grams of NO_x per bhp-hr.

(h) Beginning (two years from the effective date of this amendment), the owner or operator of a four-stroke lean-burn engine or four-stroke rich-burn engine capable of producing an output of 200 bhp or more but less than 500 bhp, combusting natural gas, and compressing gaseous fuel at a major NO_x facility shall cause it to emit no more than 2.0 grams of NO_x per bhp-hr.

CHAPTER 27A

AIR ADMINISTRATIVE PROCEDURES AND PENALTIES

SUBCHAPTER 3. CIVIL ADMINISTRATIVE PENALTIES AND REQUESTS FOR ADJUDICATORY HEARINGS

7:27A-3.10 Civil administrative penalties for violation of rules adopted pursuant to the Act

(a) - (l) (No change.)

(m) The violations of N.J.A.C. 7:27, whether the violation is minor or non-minor in accordance with (q) through (t) below, and the civil administrative penalty amounts for each violation are as set forth in the following Civil Administrative Penalty Schedule. The numbers of the following subsections correspond to the numbers of the corresponding subchapter in N.J.A.C. 7:27. The rule summaries for the requirements set forth in the Civil Administrative Penalty Schedule in this subsection are provided for informational purposes only and have no legal effect.

CIVIL ADMINISTRATIVE PENALTY SCHEDULE

1.-15. (No change.)

16. The violations of N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution by Volatile Organic Compounds (VOC), and the civil administrative penalty amounts for each violation, per source, are as set forth in the following table:

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
...						
		NM	$500	$1,000	$2,500	$7,500

N.J.A.C. 7:27-16.7(t) **and (u)**	Best management practices					

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Citation	**Class**	**Type of Violation**	**First Offense**	**Second Offense**	**Third Offense**	**Fourth and Each Subsequent Offense**
N.J.A.C. 7:27-16.14(d) and (e)	**Fiberglass boat manufacturing**					
Maximum Actual Emissions						
For less than 10 pounds per hour:						
1. Less than 25 percent over the allowable standard		**NM**	**$2,000** [3]	**$4,000** [3]	**$10,000** [3]	**$30,000** [3]
2. From 25 through 50 percent over the allowable standard		**NM**	**$4,000** [3]	**$8,000** [3]	**$20,000** [3]	**$50,000** [3]
3. Greater than 50 percent over the allowable standard		**NM**	**$8,000** [3]	**$16,000** [3]	**$40,000** [3]	**$50,000** [3]

From 10 pounds through 22.8 pounds per hour:						
1. Less than 25 percent over the allowable standard		**NM**	**$6,000 [3]**	**$12,000 [3]**	**$30,000 [3]**	**$50,000 [3]**
2. From 25 through 50 percent over the allowable standard		**NM**	**$8,000 [3]**	**$16,000 [3]**	**$40,000 [3]**	**$50,000 [3]**
3. Greater than 50 percent over the allowable standard		**NM**	**$10,000 [3]**	**$20,000 [3]**	**$50,000 [3]**	**$50,000 [3]**
For greater than 22.8 pounds per hour:						
1. Less than 25 percent over the allowable standard		**NM**	**$8,000 [3]**	**$16,000 [3]**	**$40,000 [3]**	**$50,000 [3]**
2. From 25 through 50 percent over the allowable standard		**NM**	**$10,000 [3]**	**$20,000 [3]**	**$50,000 [3]**	**$50,000 [3]**
3. Greater than 50 percent over the allowable standard		**NM**	**$10,000 [3]**	**$20,000 [3]**	**$50,000 [3]**	**$50,000 [3]**
N.J.A.C. 7:27-16.14(f)	**Best management practices**	**NM**	**$500**	**$1,000**	**$2,500**	**$7,500**

N.J.A.C. 7:27-16.14(g), (h), (i) or (j)	**Recordkeeping**	**M**	**$500**	**$1,000**	**$2,500**	**$7,500**

Citation	**Class**	**Type of Violation**	**First Offense**	**Second Offense**	**Third Offense**	**Fourth and Each Subsequent Offense**
N.J.A.C. 7:27-16.15(b)1, (c)1, (d)1, (e)1, or (f)1	**Miscellaneous metal and plastic parts coatings**					
Maximum Actual Emissions						
For less than 10 pounds per hour:						
1. Less than 25 percent over the allowable standard		**NM**	**$2,000 [3]**	**$4,000 [3]**	**$10,000 [3]**	**$30,000 [3]**
2. From 25 through 50 percent over the allowable standard		**NM**	**$4,000 [3]**	**$8,000 [3]**	**$20,000 [3]**	**$50,000 [3]**

3. Greater than 50 percent over the allowable standard	**NM**	**$8,000 [3]**	**$16,000 [3]**	**$40,000 [3]**	**$50,000 [3]**
From 10 pounds through 22.8 pounds per hour:					
1. Less than 25 percent over the allowable standard	**NM**	**$6,000 [3]**	**$12,000 [3]**	**$30,000 [3]**	**$50,000 [3]**
2. From 25 through 50 percent over the allowable standard	**NM**	**$8,000 [3]**	**$16,000 [3]**	**$40,000 [3]**	**$50,000 [3]**
3. Greater than 50 percent over the allowable standard	**NM**	**$10,000 [3]**	**$20,000 [3]**	**$50,000 [3]**	**$50,000 [3]**
For greater than 22.8 pounds per hour:					
1. Less than 25 percent over the allowable standard	**NM**	**$8,000 [3]**	**$16,000 [3]**	**$40,000 [3]**	**$50,000 [3]**
2. From 25 through 50 percent over the allowable standard	**NM**	**$10,000 [3]**	**$20,000 [3]**	**$50,000 [3]**	**$50,000 [3]**
3. Greater than 50 percent over the allowable standard	**NM**	**$10,000 [3]**	**$20,000 [3]**	**$50,000 [3]**	**$50,000 [3]**

N.J.A.C. 7:27-16.15(b)2, (c)2, (d)2, (e)2, or (f)2	**Coating Application Techniques**	**NM**	**$1,000**	**$1,500**	**$2,000**	**$2,500**
N.J.A.C. 7:27-16.15 (g)	**Best management practices**	**NM**	**$500**	**$1,000**	**$2,500**	**$7,500**
N.J.A.C. 7:27-16.15(h), (i), (j), (k), (l), (m), or (n)	**Recordkeeping**	**M**	**$500**	**$1,000**	**$2,500**	**$7,500**

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Citation	**Class**	**Type of Violation**	**First Offense**	**Second Offense**	**Third Offense**	**Fourth and Each Subsequent Offense**
N.J.A.C. 7:27-16.24(c)	**VOC control measures**	**NM**	**$1,000** [3]	**$1,500** [3]	**$2,000** [3]	**$2,500** [3]
N.J.A.C. 7:27-16.24(d)	**Best management practices**	**NM**	**$500**	**$1,000**	**$2,500**	**$7,500**

N.J.A.C. 7:27-16.24(e), (f), (g) or (h)	**Recordkeeping**	**M**	**$500**	**$1,000**	**$2,500**	**$7,500**

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17.-18. (No change.)

19. The violations of N.J.A.C. 7:27-19, Control and Prohibition of Air Pollution from Oxides of Nitrogen, and the civil administrative penalty amounts for each violation, are as set forth in the following table:

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
		…				
N.J.A.C. 7:27-19.5(k) [and (l)]	Submit reduction plan and updates	M	$2,000	$4,000	$10,000	$30,000
N.J.A.C. 7:27-19.5(l)	**Simple Cycle Combustion Turbines**					

Actual Emission (ppmvd corrected to 15 percent O_2):					
Less than 13,400 hp Turbine					
1. Less than 25 percent over the allowable standard	**NM**	**$2,000**	**$4,000**	**$10,000**	**$30,000**
2. From 25 through 50 percent over the allowable standard	**NM**	**$4,000**	**$8,000**	**$20,000**	**$50,000**
3. Greater than 50 percent over the allowable standard	**NM**	**$8,000**	**$16,000**	**$40,000**	**$50,000**
13,400 to 67,100 hp Turbine					
1. Less than 25 percent over the allowable standard	**NM**	**$6,000**	**$12,000**	**$30,000**	**$50,000**
2. From 25 through 50 percent over the allowable standard	**NM**	**$8,000**	**$16,000**	**$40,000**	**$50,000**
3. Greater than 50 percent over the allowable standard	**NM**	**$10,000**	**$20,000**	**$50,000**	**$50,000**
Greater than 67,100 hp Turbine					

1. Less than 25 percent over the allowable standard	**NM**	**$8,000**	**$16,000**	**$40,000**	**$50,000**
2. From 25 through 50 percent over the allowable standard	**NM**	**$10,000**	**$20,000**	**$50,000**	**$50,000**
3. Greater than 50 percent over the allowable standard	**NM**	**$10,000**	**$20,000**	**$50,000**	**$50,000**

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Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
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N.J.A.C. 7:27-19.8(g) or (h)	**Compressor engines greater than or equal to 200 bhp but less than 500 bhp**					
	Actual Emissions (grams per bhp-hr)					

1. Less than 25 percent over the allowable standard	**NM**	**$4,000**	**$8,000**	**$20,000**	**$40,000**
2. From 25 through 50 percent over the allowable standard	**NM**	**$6,000**	**$12,000**	**$30,000**	**$50,000**
3. Greater than 50 percent over the allowable standard	**NM**	**$9,000**	**$18,000**	**$45,000**	**$50,000**

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20.-34. (No change.)

(n)-(u) (No change.)