RULE 4663 ORGANIC SOLVENT CLEANING, STORAGE, AND DISPOSAL (Adopted December 20, 2001; Amended September 20, 2007; Amended [*rule adoption date*])

1.0 Purpose

The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from organic solvent cleaning and from the storage and disposal of solvents and waste solvent materials.

2.0 Applicability

The provisions of this rule shall apply to any organic solvent cleaning performed outside a degreaser during the production, repair, maintenance, or servicing of parts, products, tools, machinery, equipment, or in general work areas at stationary sources, including sterilizing of food manufacturing and processing equipment. The rule shall also apply to the storage and disposal of all solvents and waste solvent materials at stationary sources.

3.0 Definitions

3.1 Aerosol Product: a hand-held, non-refillable container that expels a pressurized solvent-containing product by means of a propellant-induced force.

3.2 APCO: as defined in Rule 1020 (Definitions).

3.3 Application Equipment: a device, including, but not limited to, a spray gun, brush, and roller, used to apply adhesives, coatings, or inks.

3.4 ARB: California Air Resources Board.

3.5 ASTM: ASTM International, formerly known as the American Society for Testing and Materials.

3.6 Bench Scale Project: a project (other than at a research and development facility) that is operated on a small scale, such as one capable of being located on a laboratory bench top.

3.7 CFR: Code of Federal Regulations.

3.8 Coating: a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.

3.9 Cured Adhesive, Cured Coating, or Cured Ink: an adhesive, coating, or ink that is dry to the touch.

3.10 Degreaser: a tank, tray, drum or other container in which objects to be cleaned are exposed to a solvent or solvent vapor in order to remove contaminants. The objects to be cleaned include, but are not limited to, parts, products, tools, machinery, and equipment. An enclosed spray application equipment cleaning system is not a degreaser.

3.11 Dissolver: an organic solvent that is added to an adhesive, coating, or ink in order to melt or to liquefy solid particles.

3.12 Electrical Apparatus or Electrical Components: all internal components such as wires, windings, stators, rotors, magnets, contacts, relays, energizers, and connections in an apparatus that generates or transmits electrical energy including but not limited to generators, transformers, and electric motors.

3.13 Electronic Components: all portions of an assembly such as circuit cards, printed wire assemblies, printed wiring boards, soldered joints, ground wires, bus bars, magnetic tapes and tape drive mechanisms, and other electronic fixtures, except the cabinet in which the components are housed.

3.14 EPA: United States Environmental Protection Agency.

3.15 Exempt Compound: an organic compound not classified as a volatile organic compound (VOC), as listed in the definition of volatile organic compound in Rule 1020 (Definitions).

3.16 Food Product: any material consisting of any combination of proteins, carbohydrates, and fats, and is intended for human consumption. Colorings, flavorings, spices, and extracts or any other additive contained in such a material is considered to be a food product.

3.17 Food Product Manufacturing and Processing Operation: any activity or equipment used in the production, formulation, or configuration of any food product. Such manufacturing and processing operations include, but are not limited to distillation, extraction, reacting, blending, drying, crystallizing, granulating, separation, sterilization, and filtering.

3.18~~16~~ Grams of VOC per liter of Material: the weight of VOC per volume of material and can be calculated by the following equation:

$$\text{Grams of VOC per liter of material} = \frac{Ws - Ww - Wec}{Vm}$$

Where:

Ws = Weight of volatile compounds, in grams
Ww = Weight of water, in grams
Wec = Weight of exempt compounds, in grams

Vm = Volume of material, in liters

3.19~~17~~ High Precision Optics: optical elements used in electro-optical devices which are designed to sense, detect, or transmit light energy, including specific wavelengths of light energy and changes in light energy levels.

3.20~~18~~ Janitorial Cleaning: the cleaning of building or stationary source components such as floors, ceilings, walls, windows, doors, stairs, bathrooms, etc., excluding work areas where maintenance or manufacturing are performed.

3.21 Low-Moisture Food: A food with a water activity less than 0.85 or other applicable standards approved by the APCO, CARB, and EPA.

3.22~~19~~ Liquid Leak: a visible solvent leak from a container at a rate of more than three drops per minute, or a visible liquid mist.

3.23~~20~~ Maintenance Cleaning: the cleaning of tools, forms, molds, jigs, machinery, and equipment (except coating application equipment, ink application equipment, or adhesive application equipment), and the cleaning of work areas where maintenance or manufacturing occurs.

3.24~~21~~ Manufacturing Process: the process of making goods or articles by hand or by machine.

3.25~~22~~ Medical Device: an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar article, including any component or accessory that meets the following conditions:

3.25~~22~~.1 is intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of diseases; or

3.25~~22~~.2 is intended to affect the structure or any function of the body; or

3.25~~22~~.3 is defined in the National Formulary or the United States Pharmacopeia, or any supplement to it.

3.26~~23~~ Non-Absorbent Container: a container made of non-porous material that does not allow the migration of solvents through it.

3.27~~24~~ Non-Atomized Solvent Flow: solvents in the form of a liquid stream without the introduction of any propellant.

3.28~~25~~ Non-Leaking Container: a container without liquid leak.

3.29~~26~~ Normal Business Hours: Monday through Friday, 8:00 am to 5:00 pm.

3.30~~27~~ Organic Solvent: the same as "Solvent."

3.31~~28~~ Organic Solvent Cleaning: an activity, or operation, or process, (including surface preparation, cleanup, or wipe cleaning), performed outside of a degreaser, that uses organic solvent to remove uncured adhesives, uncured coatings, uncured inks or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment and general work areas. Cleaning spray equipment used for the application of coatings, adhesives, or ink, is also considered to be organic solvent cleaning.

3.32~~29~~ Propellant: any gas, including air, in a pressure container for expelling the contents when the pressure is released.

3.33~~30~~ Repair Cleaning: a solvent cleaning operation or activity carried out during a repair process.

3.34~~31~~ Repair Process: the process of returning a damaged object or an object not operating properly to good condition.

3.35~~32~~ Research and Development: a facility or portion thereof used to further the development of useful materials, devices, systems, or methods, including, but not limited to, design, development, and improvement of prototypes and processes. Research and development does not include the manufacturing process itself.

3.36~~33~~ Rolling, Consecutive 365-Day Period: any given date plus the immediate, previous 364 days.

3.37~~34~~ SCAQMD: South Coast Air Quality Management District.

3.38~~35~~ Scientific Instrument~~s~~: an instrument~~s~~ (including the components, assemblies, and subassemblies used in their manufacture) and associated accessories and reagents which are used for the detection, measurement, analysis, separation, synthesis, or sequencing of various compounds.

3.39~~36~~ Solvent: any liquid containing a volatile organic compound or combination of volatile organic compounds, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, or for other similar uses. These liquids are principally derived from petroleum and include petroleum distillates, chlorinated hydrocarbons, chlorofluorocarbons, ketones, and alcohols. ~~Effective through September 20, 2008, solutions, emulsions, and dispersions of water and soap, or water and detergent, that contain 50 grams of VOCs per liter or less, as used, are not considered to be organic solvents. Effective on and after September 21, 2008, s~~Solutions, emulsions, and dispersions of water and soap, or water and detergent, that contain 25 grams of VOCs per liter or less, as used, are not considered to be organic solvents.

3.40~~37~~ Solvent Flushing: the use of a solvent to remove uncured adhesives, uncured inks, uncured coatings, or contaminants from the internal surfaces and passages of equipment by flushing solvent, by a non-atomized solvent flow, through the equipment.

3.41~~38~~ Stationary Source: as defined in Rule 2201 (New and Modified Stationary Source Review Rule).

3.42 Sterilization: a process or operation that removes or prevents the growth of bacteria and other living microorganisms.

3.43~~39~~ Stripping: the use of solvent to remove material such as cured adhesives, cured inks, cured or dried paint, cured or dried paint residue or temporary protective coating.

3.44~~40~~ Surface Preparation: the removal of contaminants from a surface prior to the application of coatings, inks, or adhesives or before proceeding to the next step of a manufacturing process.

3.45~~41~~ Thinner: a solvent that is used to dilute coatings to reduce viscosity, color strength, and solids, or to modify drying conditions.

3.46~~42~~ Viscosity Reducer: an organic solvent which is added to an adhesive, coating or ink to make it more fluid.

3.47~~43~~ Volatile Organic Compound (VOC): as defined in Rule 1020 (Definitions).

3.48~~44~~ Waste Solvent Material: any solvent which may contain dirt, oil, metal particles, sludge, and/or waste products, or wiping material containing VOCs including, but not limited to, paper, cloth, sponge, rag, or cotton swab used in organic solvent cleaning.

3.49 Water Activity: a measure of the free moisture in a food and the quotient of the water vapor pressure of the substance divided by the vapor pressure of pure water at the same temperature.

3.50~~45~~ Wipe Cleaning: a solvent cleaning activity performed by hand rubbing an absorbent material such as a rag, paper, sponge, brush, or cotton swab containing solvent.

4.0 Exemptions

The provisions of this rule shall not apply to:

4.1 Janitorial cleaning, including graffiti removal.

4.2 Stripping of cured coatings, cured adhesives, and cured inks, except the stripping of such materials from spray application equipment.

4.3 Any source operation that is subject to or specifically exempted by any of the following rules:

~~4.3.1 Rule 4602 (Motor Vehicle and Mobile Equipment Coating Operations). This exemption shall apply through December 31, 2008,~~

4.3.1~~2~~ Rule 4603 (Surface Coating of Metal Parts and Products),

4.3.2~~3~~ Rule 4604 (Can and Coil Coating Operations),

4.3.3~~4~~ Rule 4605 (Aerospace Assembly and Component Coating Operations),

4.3.4~~5~~ Rule 4606 (Wood Products Coating Operations),

4.3.5~~6~~ Rule 4607 (Graphic Arts),

4.3.6~~7~~ Rule 4612 (Motor Vehicle and Mobile Equipment Coating Operations—~~Phase II). This exemption shall apply on and after January 1, 2009~~,

4.3.7~~8~~ Rule 4623 (Storage of Organic Liquids),

4.3.8~~9~~ Rule 4652 (Coatings and Ink Manufacturing),

4.3.9~~10~~ Rule 4653 (Adhesives),

4.3.10~~11~~ Rule 4662 (Organic Solvent Degreasing Operations),

4.3.11~~12~~ Rule 4672 (Petroleum Solvent Dry Cleaning Operations),

4.3.12~~13~~ Rule 4684 (Polyester Resin Operations), or

4.3.13~~14~~ Rule 4691 (Vegetable Oil Processing Operations).

4.4 Except for the records required in Section 6.2.4, the provisions of Section 5.1 shall not apply to an operator using 55 gallons or less of organic solvent products in all source operations subject to Rule 4663 in a stationary source, in any rolling, consecutive 365-day period.

4.5 The provisions of Table 1 shall not apply to the following applications:

4.5.1 Cleaning of solar cells, laser hardware, scientific instruments, or high precision optics.

4.5.2 Cleaning in laboratory tests and analyses, or bench scale or research and development projects.

4.5.3 Cleaning of clutch assemblies where rubber is bonded to metal by means of an adhesive.

4.5.4 Cleaning of paper-based gaskets.

4.6 The provisions of Table 1 Category C shall not apply to the cleaning of application equipment used to apply coatings on satellites and radiation effect coatings.

4.7 ~~Until September 20, 2008, the provisions of Table 1 and Section 5.3 shall not apply to the cleaning of architectural coating application equipment provided that the cleaning solvent used does not exceed 950 grams of VOC per liter. Effective on and after September 21, 2008, such cleaning shall be performed in accordance with all provisions of the rule.~~ An operator using solvent to clean architectural coating application equipment is exempt from the provisions of this rule if the facility meets the specifications of Section 4.4.

4.8 Cleaning with aerosol products shall not be subject to the VOC content limits of Section 5.1~~Table 1~~ and the work practices of Section 5.2.2 if 160 fluid ounces or less of non-compliant aerosol products are used per day, per facility. The use of such product shall comply with ARB regulations.

4.9 Sanitizing products which are labeled and applied to food-contact surfaces that are used to process dry and low-moisture food products and are not rinsed prior to contact with food.

5.0 Requirements

5.1 Organic Solvent VOC Content Limits

5.1.1 An operator shall not use organic solvents for cleaning operations that exceed the VOC content limits specified in Table 1~~, in accordance with the corresponding effective date~~.

Table 1 – Organic Solvent VOC Content Limits

Type of Solvent Cleaning Operation	~~Effective November 15, 2003 through September 20, 2008~~ ~~VOC Content Limit Grams of VOC/liter of material (lb/gal)~~	~~Effective on and after September 21, 2008~~ VOC Content Limit Grams of VOC/liter of material (lb/gal)
A. Product Cleaning During Manufacturing Process or Surface Preparation for Coating, Adhesive, or Ink Application		
1. General	~~50 (0.42)~~	25 (0.21)
2. Electrical Apparatus Components and Electronic Components	~~500 (4.2)~~	100 (0.84)
3. Medical Devices and Pharmaceuticals	~~800 (6.7)~~	800 (6.7)
B. Repair and Maintenance Cleaning		
1. General	~~50 (0.42)~~	25 (0.21)
2. Electrical Apparatus Components and Electronic Components	~~900 (7.5)~~	100 (0.84)
3. Medical Devices and Pharmaceuticals	~~800 (6.7)~~	800 (6.7)
3.1 Tools, Equipment, and Machinery		
3.2 General Work Surfaces	~~600 (5.0)~~	600 (5.0)
C. Cleaning of Coating or Adhesive Application Equipment	~~550 (4.6)~~	25 (0.21)

5.1.2 An operator shall not use organic solvents for sterilization of food manufacturing and processing equipment that exceed 200 g/L (1.67 lb/gal) of VOCs upon satisfaction of both Sections 5.1.2.1 and 5.1.2.2 for the applicable 2008 or 2015 8-hour Ozone National Ambient Air Quality Standard:

5.1.2.1 EPA has issued final approval of this section as a contingency measure in the California State Implementation Plan for the San Joaquin Valley, and such approval has become effective; and

5.1.2.2 Following the effective date of EPA's approval described in 5.1.2.1, EPA has issued a final determination that any one of the contingency-triggering conditions specified in Sections 172(c)(9) or 182(c)(9) of the Clean Air Act have occurred with respect to the applicable ozone standard.

5.1.2.3 Upon satisfaction of Sections 5.1.2.1 and 5.1.2.2, the VOC content limit of 200 g/L for organic solvents used for sterilization of food and manufacturing processing equipment shall automatically apply sixty (60) days following the effective date of EPA's first,

final determination described in 5.1.2.2, without further action by the District or EPA.

5.2 Cleaning Methods

5.2.1 Sections 5.2.2 through 5.2.5~~8~~ shall apply to operators performing solvent cleaning operations outside the control of a VOC emission control system, provided that ~~and~~ the cleaning operations are not Table 1 Category A.1, ~~or Table 1~~ Category B.1, or Category C.

~~5.2.2 Until September 20, 2008, an operator performing cleaning operations from Table 1 (other than Category A.1 or Category B.1) and using solvent with VOC content greater than 50 g/L shall meet the requirements of Sections 5.2.5 through 5.2.7 in addition to meeting the applicable VOC content limits of Table 1.~~

5.2.2~~3~~ ~~On and after September 21, 2008, an o~~Operators performing cleaning operations from Section 5.1~~Table 1~~ (other than Table 1 Category A.1, Category B.1 or Category C) and using solvent with VOC content greater than 25 g/L shall meet the requirements of Sections 5.2.3~~5~~ through 5.2.5~~7~~ in addition to meeting the applicable VOC content limits of Section 5.1~~Table 1~~.

~~5.2.4 Sections 5.2.5 through 5.2.7 shall not apply to operators performing Table 1 Category C cleaning operations outside the control of a VOC emission control system on and after September 21, 2008.~~

5.2.3~~5~~ Cleaning activities that use solvents shall be performed by one or more of the following methods:

5.2.3~~5~~.1 Wipe cleaning; or

5.2.3~~5~~.2 Application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; or

5.2.3~~5~~.3 Non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or

5.2.3~~5~~.4 Solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without

atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping.

5.2.4~~6~~ Solvent shall not be atomized into the open air unless it is vented to a VOC emission control system that complies with Section 5.5~~4~~. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described in Section 5.2.3~~5~~.2.

5.2.5~~7~~ An operator shall not use VOC-containing materials to clean spray equipment used for the application of coatings, adhesives, or ink, unless an enclosed system or equipment that is proven to be equally effective at controlling emissions is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use.

5.3 In lieu of complying with the VOC content limits of Section 5.1~~Table 1~~ or complying with the provisions of Sections 5.2, an operator may control VOC emissions from solvent cleaning operations with a VOC emission control system that meets the requirements of Section 5.5.

5.4 Storage and Disposal of Solvents

An operator shall store or dispose of fresh or spent solvents, waste solvent ~~cleaning~~ materials ~~such as cloth, paper, etc.~~, coatings, adhesives, catalysts, and thinners in closed, non-absorbent and non-leaking containers. The containers shall remain closed at all times except when depositing or removing the contents of the containers or when the container is empty.

5.5 VOC Emission Control System

5.5.1 In lieu of complying with the requirements in Section 5.1 or Section 5.2, an operator may comply with this rule by using a VOC emission control system in association with the solvent cleaning operation, provided that during emission-producing activities, the system complies with Sections 5.5.4 and 5.5.5 and either Section 5.5.2 or Section 5.5.3, as applicable.

5.5.2 The VOC emission control system's collection device(s) has a capture efficiency of at least 90 percent, by weight, of the emissions generated by the solvent cleaning operation and one of the following requirements:

5.5.2.1 The VOC emission control system's control device(s) has a control efficiency of at least 95 percent, by weight, or

5.5.2.2 The VOC emission control system has an output of less than 50 parts per million by weight (ppm) calculated as carbon with no dilution; or,

5.5.3 If the solvent cleaning activity is associated with operations subject to Rule 4661 (Organic Solvents), the VOC emission control system shall meet the VOC emission control system overall capture and control efficiency requirements as specified in Rule 4661 (Organic Solvents).

5.5.4 The VOC emission control system shall be approved by the APCO.

5.5.5 In no case shall compliance through use of a VOC emission control system result in VOC emissions in excess of the VOC emissions which would result from compliance with Section 5.1 or Section 5.2, as applicable.

6.0 Administrative Requirements

6.1 Compliance Statement Requirements

Manufacturers of any solvents subject to this rule shall indicate on the solvent container, or on a separate product data sheet or material safety data sheet, the name of the solvent, manufacturer's name, the VOC content, and density of the solvent, as supplied. The VOC content shall be expressed in units of grams~~/~~per liter (g/L) or ~~lb/~~ pounds per gallon (lb/gal).

6.2 Recordkeeping Requirements

An operator shall comply with the following recordkeeping requirements:

6.2.1 The operator shall retain the records specified in Sections 6.2.2 through 6.2.6, as applicable, on site for a period of five years, make the records available on site during normal business hours to the APCO, ARB, or EPA, and submit the records to the APCO, ARB, or EPA upon request.

6.2.2 Keep a copy of the manufacturer’s product data sheet or material safety data sheet of the solvents used for organic solvent cleaning activities.

6.2.3 Maintain a current list of solvents that are being used for organic solvent cleaning activities at the stationary source. The list shall include the following information:

6.2.3.1 The name of the solvent and its manufacturer’s name.

6.2.3.2 The VOC content of the solvent expressed in grams/liter or lb/gallon.

6.2.3.3 When the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch shall be recorded and the VOC content of the batch shall be calculated and recorded in order to determine compliance with the specified limits of VOC content, as applied.

6.2.3.4 The type of cleaning activity for each solvent that is being used at the stationary source in accordance with the applicable cleaning category specified in Section 5.1~~Table 1~~ of this rule.

6.2.4 ~~On and after September 20, 2007, t~~The quantity of solvents used in solvent cleaning operations shall be recorded on a daily basis.

6.2.5 An operator claiming exemption under Section 4.4 shall keep records of any additional information necessary to confirm that 55 gallons or less of organic solvent products are used in all source operations subject to this rule at the stationary source in any rolling, consecutive 365-day period. An operator shall maintain usage records of non-compliant solvents on the days that non-compliant solvents are used.

6.2.6 VOC Emission Control System Records

6.2.6.1 An operator using a VOC emission control system pursuant to Section 5.5 as a means of complying with this rule shall maintain daily records of the VOC emission control system's key operating parameters during periods of emission-producing operations. Key system operating parameters are those necessary to ensure compliance with VOC limits. The parameters may include, but are not limited to, temperatures, pressures, and flow rates.

6.2.6.2 An operator shall keep records describing all maintenance work on the VOC emission control system that requires the VOC emission control system to be shut down.

6.3 Test Methods

6.3.1 Determination of VOC Content

6.3.1.1 The VOC content of solvents and organic materials shall be determined by using EPA Test Method 24 or 24A, or SCAQMD Method 304 (Determination of Volatile Organic Compounds in Various Materials), or by using the manufacturer's product formulation data and the formula for "Grams of VOC per liter of Material" in Section 3.0.

6.3.1.2 The content of exempt halogenated VOCs shall be determined by using the ARB Method 432 or SCAQMD Method 303 (Determination of Exempt Compounds).

6.3.2 Determination of Overall Capture and Control Efficiency of a VOC Emission Control System

6.3.2.1 The capture efficiency of a VOC emission control system's collection device(s) shall be determined according to EPA's "Guidelines for Determining Capture Efficiency," January 9, 1995 and 40 CFR 51, Appendix M, Methods 204-204F, as applicable, or any other method approved by EPA, ARB, and the APCO.

6.3.2.2 The control efficiency of a VOC emission control system's control device(s) shall be determined using EPA Methods 2, 2A, or 2D for measuring flow rates and EPA Methods 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the VOC emission control system's control device. EPA Method 18 or ARB Method 422 shall be used to determine the emissions of exempt compounds.

6.3.2.3 For VOC emission control systems that consist of a single VOC emission collection device connected to a single VOC emission control device, the overall capture and control efficiency shall be calculated by using the following equation:

$$CE_{CAPTURE\ AND\ CONTROL} = [\ CE_{CAPTURE} \times CE_{CONTROL}\ ] / 100\ \%$$

Where:

$CE_{CAPTURE\ AND\ CONTROL}$ = Overall Capture and Control Efficiency, in percent

$CE_{CAPTURE}$ = Capture Efficiency of the collection device, in percent, as determined in Section 6.3.2.1

$CE_{CONTROL}$ = Control Efficiency of the control device, in percent, as determined in Section 6.3.2.2.

6.3.3 Determination of Solvent Losses from Spray Gun Cleaning Systems

The passive and active solvent losses from spray gun cleaning systems shall be determined by using SCAQMD "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems" dated October 3, 1989. The test solvent for this determination shall be lacquer thinner with a minimum vapor pressure of 105 mm Hg at 20ºC. The minimum temperature shall be 15ºC.

6.4 Multiple Test Methods

When more than one test method or set of test methods is specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

6.5 Version of Test Methods

All ASTM test methods referenced in Section 6.0 are the most recently EPA-approved version that appears in the CFR as Materials Approved for Incorporation by Reference.