

**REGULATION 11  
HAZARDOUS POLLUTANTS  
RULE 16  
PERCHLOROETHYLENE AND SYNTHETIC SOLVENT  
DRY CLEANING OPERATIONS**

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**REGULATION 11**  
**HAZARDOUS POLLUTANTS**  
**RULE 16**  
**PERCHLOROETHYLENE AND SYNTHETIC SOLVENT**  
**DRY CLEANING OPERATIONS**

(Adopted December 21, 1994)

**11-16-100 GENERAL**

**11-16-101 Description:** The purpose of this Rule is to limit emissions of synthetic solvent from dry cleaning operations and other related operations, and to limit exposure to perchloroethylene, a compound identified as a toxic air contaminant by the California Air Resources Board. This rule is consistent with requirements of the Airborne Toxic Control Measure adopted by the California Air Resources Board (Title 17, California Code of Regulations, Section 93109), Airborne Toxic Risk Reduction Measures (sections 44390 and 44391 of the California Health and Safety Code), and the National Perchloroethylene Air Emissions Standards for Dry Cleaning Facilities, promulgated by the Environmental Protection Agency (40 CFR, Part 63, Subpart M).

**11-16-102 Applicability:** Any person who performs dry cleaning or other related operations (water repellent treatment and dip tank operations) that use perchloroethylene or any other synthetic solvent shall comply with this rule. Operation of any equipment associated with dry cleaning that uses or contains synthetic solvent is subject to this rule. The requirements of this rule may be in addition to those found in other District rules and regulations. New, modified, relocated, or replacement equipment shall be given pre-construction review and granted authority to construct in accordance with Regulation 2, Rule 1-301.

*(Amended June 15, 2005)*

**11-16-103 Exemption, Other Solvents:** This rule does not apply to dry cleaning facilities which do not use synthetic solvents. Dry cleaning using petroleum solvent (including non-halogenated synthetic petroleum solvent) is subject to Regulation 8, Rule 17, "Petroleum Dry Cleaning Operations".

**11-16-104 Limited Exemption, Relocated Facilities:** Relocation of a closed-loop or a previously converted machine to a non-residential facility within the District shall be exempt from subsection 302.1, which requires secondary control systems at new facilities. A relocated machine is subject to subsections 301.1 and 302.2. New or replacement equipment at a relocated facility shall not be eligible for this exemption.

**11-16-105 Limited Exemption, Drying Cabinets:** Sections 301, 302, and 303 shall not be applicable to drying cabinets used exclusively for delicate and specialty articles which are likely to be damaged when dried in converted or closed-loop machines. Drying cabinets are subject to subsection 305.5.

**11-16-106 Limited Exemption, Pass-through Clean-room Garment Cleaners:** Subsections 301.1 and 304.7 shall not apply to existing pass-through clean-room garment cleaners that cannot be feasibly converted to closed-loop systems. These devices shall instead be subject to subsection 305.6.

**11-16-107 Limited Exemption, Non-carcinogenic Synthetic Solvents:** Equipment using exclusively the following synthetic solvents shall not be subject to the equipment and ventilation provisions of Section 303 but shall instead be subject to sections 301 and 302: 111-trichloroethane (111-TCA) and trichlorotrifluoroethane (Valclene or CFC-113).

**11-16-200 DEFINITIONS**

**11-16-201 Adsorptive Cartridge Filter:** A replaceable cartridge filter that contains diatomaceous earth or activated clay as the filter medium.

**11-16-202 Air Change Rate:** The number of displacements of a volume of air (equal to the volume of a restricted working region of a facility where solvent emissions occur) in a specific time period. A 5000 cubic feet per minute fan would cause one air change

every five minutes (or 12 air changes per hour) for a working region with a volume of 25,000 cubic feet.

- 11-16-203 Capture Velocity:** The velocity (speed) of air created by a ventilation system, measured in feet per minute, at fugitive emission points (e.g. loading door) or at intended openings in structures that isolate/contain the dry cleaning equipment. Generally an "adequate" ventilation system captures at least 90% of the fugitive emissions and has a capture velocity of 100 to 200 feet per minute.
- 11-16-204 Cartridge Filter:** A replaceable cartridge filter that contains one of the following as the filter medium: paper, activated carbon, or paper and activated carbon. A cartridge filter contains no diatomaceous earth or activated clay. Cartridge filters include, but are not limited to: standard filters, split filters, "jumbo" filters, and all carbon polishing filters.
- 11-16-205 Closed-loop Machine:** (Also known as vent-less dry-to-dry) dry cleaning equipment in which washing, extraction, and drying are all performed in the same single unit and which recirculates solvent-laden vapor through a primary control system with no exhaust to the atmosphere during the drying cycle. A closed-loop machine may allow for venting to the ambient air through a fugitive control system after the drying cycle is complete and only while the machine door is open. A closed-loop machine with a secondary control system may also be referred to as a secondary control machine.
- 11-16-206 Co-located with a Commercial Business - "Co-commercial":** Sharing a building (or sharing a common wall, floor, or ceiling) with another commercial or industrial business.
- 11-16-207 Co-located with a Residence - "Co-residential":** Sharing a building with a residence or sharing a common wall, floor, or ceiling with a residence. For the purposes of this definition, "residence" means any dwelling or housing which is owned, rented, or occupied by the same person for a period of 180 days or more, excluding short-term housing such as a motel or hotel room rented and occupied by the same person for a period of less than 180 days.
- 11-16-208 Control Device:** A device for reducing emissions of synthetic solvent to the atmosphere including but not limited to, vapor adsorbers and refrigerated condensers.
- 11-16-209 Converted Machine:** A previously existing vented machine that has been modified to be a closed-loop machine by eliminating the aeration step, installing a primary control system, and providing for recirculation of the solvent-laden vapor with no exhaust to the atmosphere or workroom during the drying cycle. A converted machine may allow for venting to the ambient air through a fugitive control system after the drying cycle is complete and only while the machine door is open.
- 11-16-210 Cool-down:** The portion of the drying cycle that begins when the heating mechanism deactivates and the refrigerated condenser continues to reduce the temperature of the air recirculating through the drum to reduce the concentration of solvent in the drum.
- 11-16-211 Date of Compliance:** The date by which a facility shall be in compliance with a specific requirement of this rule.
- 11-16-212 Deodorization:** The last step of the drying cycle for a vented machine or reclaimer during which fresh air is used to strip residual solvent from materials and is exhausted through a control device.
- 11-16-213 Desorption:** Regeneration of an activated carbon bed, or any other type of vapor adsorber by removal of the adsorbed solvent using hot air, steam, or other means.
- 11-16-214 Dip Tank Operations:** The immersion of materials in a solution that contains solvent, for purposes other than dry cleaning, in a tank or container that is separate from the dry cleaning equipment.
- 11-16-215 District:** The Bay Area Air Quality Management District.
- 11-16-216 Drum:** The rotating cylinder or wheel of the dry cleaning machine that holds the materials being cleaned.
- 11-16-217 Dry Cleaning:** The process used to remove soil, greases, paints, and other unwanted substances from materials with perchloroethylene or other synthetic solvents.

- 11-16-218 Dry Cleaning Equipment:** Any machine, device, or apparatus used to dry clean materials with solvent or to remove residual solvent from previously cleaned materials. Dry cleaning equipment may include, but is not limited to, a transfer machine (washer or reclaimer), a vented machine, a converted machine, a closed-loop machine, a secondary control machine, or a drying cabinet.
- 11-16-219 Dry Cleaning System:** All of the following equipment, devices, or apparatus associated with the solvent dry cleaning process: dry cleaning equipment; filter or purification systems; waste holding, treatment, or disposal systems; solvent supply systems; dip tanks; pumps; gaskets; piping, ducting, fittings, valves, or flanges that convey solvent-contaminated air; and control systems.
- 11-16-220 Drying Cabinet:** A housing in which materials previously dry-cleaned with solvent are placed to dry and which is used only to dry materials that would otherwise be damaged by the heat and tumbling action of the drying cycle.
- 11-16-221 Drying Cycle:** The process used to actively remove the solvent remaining in the materials after washing and extraction. For closed-loop machines, the heated portion of the cycle is followed by cool-down and may be extended beyond cool-down by the activation of a control system. The drying cycle begins when heating coils are activated and ends when the machine ceases rotation of the drum.
- 11-16-222 Drying Sensor/Controller:** A device that senses when the materials being cleaned are relatively dry and automatically controls the drying cycle. Drying sensor/controllers include but are not limited to infrared analyzers, float switches, and resistance probes. Near the end of cool-down, the drying sensor/controller detects a low concentration of solvent in the drying air or a relatively low solvent recovery rate and then extends the drying cycle for a preset time to ensure dry garments.
- 11-16-223 Drying Tumbler:** Dry cleaning equipment which dries articles previously cleaned with synthetic solvent. For purposes of this rule, drying tumblers include solvent reclaimers.
- 11-16-224 Dry-to-Dry Unit:** Dry cleaning equipment which combines the functions of cleaning and drying in one unit and where articles to be cleaned are placed in the equipment and not removed until the drying cycle is complete. A vented machine draws in fresh air during the deodorizing cycle to remove residual solvent. A closed-loop machine is not vented during any part of the drying cycle and must have a refrigerated condenser or other equivalent primary control device to effectively recover solvent and deodorize garments.
- 11-16-225 Environmental Training Program:** An initial course or a refresher course of the environmental training program for solvent dry cleaning operations that has been authorized by the Air Resources Board according to the requirements of 17 CCR, Section 93110.
- 11-16-226 Equivalent Closed-loop Vapor Recovery System:** A device or combination of devices that achieves, in practice, a solvent recovery performance equal to or exceeding that of refrigerated condensers.
- 11-16-227 Existing Facility:** Any facility, located within the District, in operation prior to October 1, 1994.
- 11-16-228 Existing Machine:** A dry cleaning machine in operation at an existing facility within the District prior to October 1, 1994.
- 11-16-229 Facility:** For the purposes of this rule, any entity or entities which own or operate solvent dry cleaning equipment, are owned or operated by the same person(s), and are located on the same parcel or contiguous parcels.
- 11-16-230 Facility Mileage:** The efficiency of solvent use at a facility, expressed as the pounds of materials cleaned per gallon of solvent used, and calculated for all dry cleaning machines at the facility over a specified time period.
- 11-16-231 Fugitive Control System:** A device or apparatus that collects fugitive solvent vapors from the machine door, button and lint traps, still, or other intentional openings of the dry cleaning system and routes those vapors to a device that reduces the mass of solvent prior to exhaust of the vapor to the atmosphere.
- 11-16-232 Full-time Employee:** Any person who is employed at the dry cleaning facility and averages at least 30 hours per week in any 90-day period.

- 11-16-233 Gallons of Solvent Used:** The volume of solvent, in gallons, introduced into the dry cleaning equipment, and not recovered at the facility for reuse on-site in the dry cleaning equipment, over a specified time period. Also known as "gross usage" or "solvent consumption".
- 11-16-234 Halogenated-hydrocarbon Detector:** A portable device capable of detecting vapor concentrations of perchloroethylene of 25 ppmv or less and indicating an increasing concentration by emitting an audible signal or visual indicator that varies as the concentration changes. Equivalent portable gas analyzers include but are not limited to flame ionization detectors, photo-ionization detectors, and infrared analyzers.
- 11-16-235 Liquid Leak:** A leak of liquid containing solvent of more than 1 drop every 3 minutes.
- 11-16-236 Major Facility (Title V):** For dry cleaning facilities only, pursuant to 40 CFR, Part 63, Subpart M, § 63.320 (g), a dry cleaning facility is a major facility if it emits or has the potential to emit more than 10 tons per year of perchloroethylene (or other hazardous air pollutant) to the atmosphere. In lieu of measuring a facility's potential to emit perchloroethylene emissions, a perchloroethylene dry cleaning facility is a major facility if:
- (1) it includes only dry-to-dry machines (s) and has a total yearly perchloroethylene consumption greater than 2,100 gallons as determined according to § 63.323 (d); or
  - (2) it includes only transfer machine system(s) or both dry-to-dry machine(s) and transfer machines system(s) and has a total yearly perchloroethylene consumption greater than 1,800 gallons as determined according to § 63.323 (d).
- 11-16-237 Materials:** Wearing apparel, draperies, linens, fabrics, textiles, rugs, leather, and other goods that are dry cleaned.
- 11-16-238 Muck Cooker:** A device for heating solvent-laden waste material to volatilize and recover solvent.
- 11-16-239 New Facility:** A facility that did not operate any dry cleaning equipment within the District prior to October 1, 1994. Relocation of existing equipment may be exempt from the secondary control requirement (subsection 302.1) if operated by the owner/operator of the previous facility.
- 11-16-240 Non-residential Facility:** Any dry cleaning facility that is not a co-residential facility
- 11-16-241 Pass-through Clean-room Garment Cleaner:** A machine used exclusively for cleaning of garments or other fabric articles that are worn for processes highly sensitive to contamination (e.g. semiconductor and pharmaceutical manufacturing). Venting of air is necessary to reduce redeposition of contaminants on the garments. Pass-through units have two doors; one door is used for loading while the other door opens into a clean-room to allow unloading without contamination.
- 11-16-242 Perceptible Vapor Leak:** An emission of solvent vapor from unintended openings in the dry cleaning system, as indicated by the odor of solvent or the detection of gas flow by passing the fingers over the surface of the system. This definition applies for an interim period until April 1, 1996.
- 11-16-243 Perchloroethylene (Perc):** The substance with the chemical formula 'C<sub>2</sub>Cl<sub>4</sub>', also known by the name 'tetrachloroethylene', which has been identified by the Air Resources Board and listed as a toxic air contaminant in 17 CCR, Section 93000. Chemical Abstract Service (CAS) number 127184.
- 11-16-244 Pounds of Materials Cleaned Per Load:** The total dry weight, in pounds, of the materials in each load dry cleaned at the facility, as determined by weighing each load on a scale prior to dry cleaning and recording the value.
- 11-16-245 Portable Gas Analyzer:** Any hand carried instrument used to detect the concentration of hydrocarbons in air, includes but is not limited to gas chromatographs, flame ionization detectors, photo-ionization detectors, and infrared analyzers.
- 11-16-246 Primary Control System:** A refrigerated condenser, or an equivalent closed-loop vapor recovery system that meets the requirements of Regulation 2, Rule 1.

- 11-16-247 Reclaimer:** A machine, device, or apparatus used only to remove residual solvent from materials that have been previously cleaned in a separate piece of dry cleaning equipment.
- 11-16-248 Reasonably Available:** As it applies to an initial course for the environmental training program, means that the course is offered within 200 miles of the District boundaries and that all such courses have a capacity, in the aggregate, that is adequate to accommodate at least one person from each facility in the District required to certify a trained operator at that time.
- 11-16-249 Refrigerated Condenser:** A closed-loop vapor recovery system into which solvent vapors are introduced and trapped by cooling below the dew point of the solvent.
- 11-16-250 Relocated Facility:** Any non-residential facility with a closed-loop machine(s) or a previously converted vented machine(s) that had previously been used at an existing facility prior to October 1, 1994 and is owned and operated by the same owner/operator as the previous existing facility.
- 11-16-251 Secondary Control System:** A device or apparatus that reduces the concentration of solvent in the recirculating air at the end of the drying cycle beyond the level achievable with a refrigerated condenser alone. An "integral" secondary control system is designed and offered as an integral part of a production package with a single make and model of dry cleaning machine and primary control system. An "add-on" secondary control system is designed or offered as a separate retrofit system for use on multiple machine makes and models.
- 11-16-252 Secondary Control Machine:** A closed-loop dry cleaning machine that includes a secondary control system.
- 11-16-253 Self-service Dry Cleaning Machine:** A solvent dry cleaning machine that is loaded, activated, or unloaded by the customer.
- 11-16-254 Separator:** Any device used to recover solvent from a water-solvent mixture.
- 11-16-255 Still:** A device used to volatilize (distill) and recover solvent from contaminated solvent removed from the cleaned materials.
- 11-16-256 Synthetic Solvent or Solvent:** For the purpose of this rule only, any halogenated hydrocarbon including, but not limited to, tetrachloroethylene (perchloroethylene, Perc, or PCE); 1,1,1-trichloroethane (111-TCA); and trichlorotrifluoroethane (Valclene or CFC-113). Non-halogenated synthetic solvents are subject to Regulation 8, Rule 17, "Petroleum Dry Cleaning Operations". "Solvent" is used instead of "Synthetic Solvent" for the purposes of clarity in certain sections of this rule.
- 11-16-257 Tetrachloroethylene:** The substance with the chemical formula ' $C_2Cl_4$ ', also known by the name perchloroethylene, which has been identified by the Air Resources Board and listed as a toxic air contaminant in 17 CCR, Section 93000. Chemical Abstract Service (CAS) number 127184.
- 11-16-258 Trained Operator:** The owner, the operator, or an employee of the facility, who holds a record of completion for the initial course of an environmental training program and maintains her/his status by successfully completing the refresher courses as required.
- 11-16-259 Transfer Machine:** A combination of solvent dry cleaning equipment in which washing and extraction are performed in one unit and drying is performed in a separate unit (reclaimer).
- 11-16-260 Vapor Adsorber:** A bed of activated carbon or other adsorbent into which solvent vapors are introduced and trapped for subsequent desorption. Includes external adsorber ("sniffer"), secondary control system; or fugitive control system.
- 11-16-261 Vapor Barrier Room:** A room built with materials that are resistant to diffusion of solvent vapors and that totally encloses a dry cleaning machine in order to minimize the exposure to people who are co-located with a dry cleaning facility. An associated ventilation system exhausts fugitive emissions outside the building.
- 11-16-262 Vapor Leak:** An emission of synthetic solvent (perchloroethylene) vapor from unintended openings in the dry cleaning system, as indicated by a rapid audible signal or visual signal from a halogenated-hydrocarbon detector or a concentration of synthetic solvent (perchloroethylene) exceeding 50 ppmv as methane (25 ppmv as



Perc) as indicated by a portable analyzer. This definition applies beginning April 1, 1996.

**11-16-263 Vented Machine:** Dry cleaning equipment in which washing, extraction, and drying are all performed in the same single unit and in which fresh air is introduced into the drum in the last step of the drying cycle and exhausted to the atmosphere through a control device.

**11-16-264 Waste From Dry Cleaning Operations:** For the purposes of this regulation only, any liquid or solid, recovered from dry cleaning operations, that contain more than 0.1% by weight of synthetic solvents. Water recovered from synthetic solvent operations that does not have a visible organic phase is not considered waste for the purposes of this regulation, but is defined as "waste water".

**11-16-265 Waste Water Evaporator:** A device that vaporizes solvent-contaminated waste water through the addition of thermal or chemical energy, or through physical action.

**11-16-266 Water-repellent Treatment:** The treatment of materials with a water-repellent solution that contains solvent.

## **11-16-300 STANDARDS**

**11-16-301 Final Equipment Requirements, Existing Non-residential Facilities:** Except as prohibited in Section 304, any person using synthetic solvent to dry clean materials in an existing non-residential facility shall use only the following equipment:

301.1 For an existing machine (operated prior to October 1, 1994):

1. A converted machine, or
2. A closed-loop machine, or
3. A secondary control machine, or
4. Until prohibited on October 1, 1998:
  - a. A vented machine, or
  - b. A transfer machine;

301.2 For a machine that replaces an existing machine:

1. A closed-loop machine, or
2. A secondary control machine;

301.3 For an additional machine (new installation; not replacing an existing machine):

1. A secondary control machine;

301.4 For any existing facility that requests an increase in permitted solvent usage for an existing machine or replacement machine:

1. A secondary control machine or
2. A closed-loop machine with a fugitive control system that meets the provisions of subsection 305.4;

301.5 Except as provided in subsections 301.5.1 and 301.5.2 below, in addition to the dry cleaning equipment above, a ventilation system that meets the requirements of subsection 307.2 and Regulation 2, Rule 1, Section 301 shall be installed and operated.

1. Subsection 301.5 shall be waived by APCO, for a facility subject to subsection 301.3 or 301.4, if the off-site cancer risk caused by the facility is less than 100 in a million and the increase in off-site cancer risk caused by an additional machine or an increase in permitted solvent usage is less than 10 in a million.
2. For a facility that is only subject to subsections 301.1 or 301.2: subsection 301.5 becomes effective on October 1, 1998 but shall be waived by APCO if the off-site cancer risk caused by the facility is less than 100 in a million.
3. A fugitive control system that meets the requirements of subsection 305.4 may be installed and operated as a component of the ventilation system to reduce risk, particularly for co-commercial facilities.

Risk shall be determined by procedures outlined in Section 11-16-605.

*(Amended June 15, 2005)*

**11-16-302 Equipment Requirements, New Non-residential Facilities:** Any person using synthetic solvent to dry clean materials in a new non-residential facility shall use only the following equipment:

302.1 A secondary control machine;

302.2 Except as provided in subsections 302.2.1, in addition to the dry cleaning equipment above, a ventilation system that meets the requirements of subsection 307.2 and Regulation 2, Rule 1, Section 301 shall be installed and operated.

1. Section 302.2 shall be waived by APCO if the off-site cancer risk caused by the facility is less than 10 in a million. Risk shall be determined by procedures outlined in Section 11-16-605.

*(Amended June 15, 2005)*

**11-16-303 Final Equipment Requirements, Co-residential Facilities:** Any person using synthetic solvents to dry clean materials in a co-residential facility shall use only the following equipment:

303.1 For any new or replacement machine:

1. A secondary control machine;

303.2 For an existing machine:

1. A secondary control machine, or
2. A closed-loop machine with a fugitive control system, that meets the provisions of subsection 305.4, or
3. Until prohibited on April 1, 1997:
  - a. A vented machine, or
  - b. A transfer machine, or
  - c. A converted machine, or
  - d. A closed-loop machine;

303.3 Except as provided in subsection 303.3.1, in addition to the dry cleaning equipment above, a vapor barrier room and a ventilation system that meets the requirements of subsection 307.1 and Regulation 2, Rule 1, Section 301 shall be installed and operated.

1. An existing facility shall not be subject to subsection 303.3 until April 1, 1997 unless the facility installs an additional machine or requests an increase in permitted solvent usage.

**11-16-304 Prohibited Equipment / Operations:** Owner/operator shall not operate any dry cleaning equipment or perform any operations listed below after the applicable date:

304.1 Effective October 1, 1994: any washing, drying, or treatment (excluding pre-cleaning of spots) outside of approved equipment is prohibited.

304.2 Effective October 1, 1994: any new installation of a vented machine or a transfer machine is prohibited.

304.3 Effective December 21, 1994: a separate washer or drying tumbler used with dry-to-dry equipment is prohibited; wet materials shall not be transferred to or from dry-to-dry machines except from dip tanks or to a drying cabinet.

304.4 Effective December 21, 1994: any self-service dry cleaning machine is prohibited.

304.5 Effective April 1, 1996: conversion of any vented machine to a closed-loop system is prohibited.

304.6 Effective April 1, 1997, for co-residential facilities: any vented machine, transfer machine, or closed-loop machine without a secondary control system or fugitive control system is prohibited.

304.7 Effective October 1, 1998: any vented machine is prohibited.

304.8 Effective October 1, 1998: any transfer machine is prohibited except a drying cabinet that meets the requirements of subsection 305.5.

**11-16-305 Specifications for Required Equipment:** Except as provided in Section 306, dry cleaning equipment shall meet following specifications:

305.1 A primary control system shall:

1. Operate during both the heated and cool-down phases of the drying cycle to reduce the mass of solvent in the recirculating air stream;
2. Not exhaust to the workroom or atmosphere except through a fugitive control system after the drying cycle is complete.

3. Not require the addition of any form of water to the primary control system that results in physical contact between the water and solvent;
  4. For refrigerated condensers only:
    - a. Be capable of achieving an outlet vapor temperature, downstream of any bypass, of less than or equal to 45°F during cool-down; and
    - b. Have a temperature indicator (a thermocouple with a digital display, a graduated thermometer with a minimum range from 0°F to 150°F, or an equivalent temperature indicator) which measures the temperature of the outlet vapor stream, downstream of any bypass of the condenser, and is easily visible to the operator.
    - c. Closed-loop machines and converted machines that are installed or modified after December 21, 1994 shall have a drying sensor/controller that complies with subsection 309.1.1.b. This provision applies also to primary control systems on closed-loop machines equipped with secondary control; the drying sensor activates the secondary control system.
  5. For equivalent closed-loop vapor recovery systems:
    - a. Use a technology that has been demonstrated, pursuant to the requirements of Section 502, to achieve a solvent concentration of 8,600 ppmv (measured as Perc) or less in each test and
    - b. Have a device that measures the solvent concentration, or a demonstrated surrogate parameter, in the drum at the end of each drying cycle, before the machine door is opened and any fugitive control system activates, and indicates if the concentration is above or below 8,600 ppmv (measured as Perc). This device shall be installed such that the reading is easily visible to the operator and shall control the drying cycle. This device shall be considered a drying sensor/controller that is subject to subsection 309.1.1.b.
- 305.2 A converted machine shall meet all of the following requirements upon conversion but no later than April 1, 1996:
1. All process vents that exhaust to the atmosphere or workroom during washing, extraction, or drying shall be sealed. Machines may be exhausted through a fugitive control system after the drying cycle is complete.
  2. The converted machine shall use an appropriately sized primary control system to recover solvent vapor during the heated and cool-down phases of the drying cycle.
    - a. A refrigerated condenser shall be considered appropriately sized, for a machine converted on or after May 4, 1994, if all of the following conditions are met:
      - (1) The water-cooled condensing coils are replaced with refrigerant-cooled condensing coils.
      - (2) The compressor of the refrigerated condenser shall have a capacity, in horsepower (hp) that is no less than the minimum capacity, determined as follows:
 
$$\text{Minimum Capacity}(hp) = \frac{\text{Capacity of the Machine}(lbs)}{12}$$
    - b. A refrigerated condenser shall be considered appropriately sized, for a machine converted prior to May 4, 1994, if either of the conditions below are met:
      - (1) The refrigerated condenser shall meet the specifications for new conversions in subsection 2.a or
      - (2) There shall be no reduction in the design air flow of the machine to the refrigerated condenser and the refrigerated condenser shall achieve, and maintain for 3 minutes, an

outlet vapor temperature, measured downstream of the condenser and any bypass of the condenser, of less than or equal to 45°F within 10 minutes of the initiation of cool-down.

- c. An equivalent closed-loop vapor recovery system shall be appropriately sized for the conversion of a vented machine if the system does not extend the total drying time by more than five minutes to meet the specifications of subsection 5.
  3. The converted machine shall operate with no liquid leaks and no vapor leaks. Any seal, gasket, or connection determined to have a liquid leak or vapor leak shall be replaced.
- 305.3 A secondary control system shall:
1. Be designed to function with a primary control system or be designed to function as a combined primary control system and secondary control system that meets all of the applicable requirements of this section;
  2. Not exhaust to the workroom or atmosphere except when also used as a fugitive control system (subject to subsection 305.4);
  3. Not require the addition of any form of water to the secondary control system that results in physical contact between the water and solvent;
  4. Use a technology that has been demonstrated, pursuant to the requirements of Section 502, to achieve a solvent concentration in the drum of 300 ppmv or less measured as Perc (600 ppmv as methane, C<sub>1</sub>) in each test;
  5. Have a holding capacity equal to or greater than 200 percent of the maximum quantity of solvent vapor expected in the drum prior to activation of the system; and
  6. For add-on secondary control systems only, the system shall be sized and capable of reducing the solvent concentration in the drum from 8,600 ppmv or greater to 300 ppmv or less measured as Perc (600 ppmv as methane, C<sub>1</sub>) in the maximum volume of recirculating air in the dry cleaning machine and all contiguous piping.
- 305.4 Ventilation of perchloroethylene laden air from the drum or other intended openings of a dry-cleaning machine is allowable only through a fugitive control system (or secondary control system also functioning as a fugitive control system) after the drying cycle is complete and prior to opening of the door or seal.
1. Except as required by subsection 2, emissions from any fugitive control system installed after December 21, 1994 shall be exhausted through a stack that extends a minimum of 5 feet above the roof of the building.
  2. Only for machines subject to subsections 301.4.2, 301.5.3, 303.2.2, and 2, a fugitive control device shall:
    - a. Operate a fan that produces a volumetric airflow of at least 100 actual cubic feet per minute (ACFM) for at least 10 seconds immediately prior to or as the loading door or seal is opened; or shall maintain the concentration of perchloroethylene at 25 ppmv or less when measured 6 inches from the center of the open loading door or seal;
    - b. Reduce the emissions of solvent in the exhaust air to a concentration less than 100 ppmv measured as Perc at the outlet;
    - c. Exhaust all emissions through a stack that extends a minimum of 5 feet above the roof of the building or any adjacent building, whichever is higher; and
    - d. Be operated, maintained, and regenerated according to manufacturers recommendations. Desorption or replacement of adsorption canisters shall be performed periodically, and at a

minimum, shall be each time dry cleaning equipment exhausted to the fugitive control system has operated the allowable number of loads for its rated capacity in accordance with the following formula:

$$\text{Maximum loads per regeneration} = \frac{75 \times [\text{lbs of carbon in fugitive control system}]}{\text{rated capacity of drycleaning machine (in lbs)}}$$

The APCO shall evaluate and approve alternative desorption/replacement schedules for other adsorbent materials. Desorption shall be performed with the minimum steam pressure (or hot air temperature) and air flow capacity specified by the manufacturer.

305.5 A drying cabinet shall be used only for delicate and specialty articles which are likely to be damaged when dried in converted or closed-loop machines and shall be fully enclosed and be exhausted via one of the following methods:

1. To a control system that achieves a solvent concentration of 100 ppmv or less in each test measured as Perc (200 ppmv as methane,  $C_1$ ) at the outlet without dilution or
2. To a control system that reduces the concentration of solvent in a closed system with no exhaust to the atmosphere or workroom. This closed drying system shall meet the primary control provisions of subsection

305.6 A pass-through, clean-room garment cleaner eligible for limited exemption by Section 106 shall be exhausted via a vapor adsorption system that achieves a solvent concentration of less than 100 ppmv, measured as methane,  $C_1$ , (50 ppmv as Perc) at the outlet without dilution. The vapor adsorber shall be regenerated at least daily and shall be monitored daily (during deodorization of the last drying cycle prior to regeneration) with a colorimetric detector tube or a portable gas analyzer in accordance with subsection 309.1.5 to demonstrate compliance.

**11-16-306 Specifications for Interim Equipment and Controls:** Until the applicable prohibition provisions of Section 304, solvent emissions from vented machines and drying tumblers shall be abated by one of the following methods:

306.1 Exhausted through a vapor adsorber which reduces emissions of synthetic solvents to the atmosphere by at least 90 percent by weight or to a solvent concentration of less than 100 ppmv, measured as methane,  $C_1$ , (50 ppmv as Perc) at the outlet without dilution or

306.2 Recirculated through a refrigerated condenser that:

1. Achieves an outlet vapor temperature, downstream of any bypass, of less than or equal to 45°F during cool-down ; and
2. Has a temperature indicator (a thermocouple with a digital display, a graduated thermometer with a minimum range from 0°F to 150°F, or an equivalent temperature indicator) which measures the temperature of the outlet vapor stream, downstream of any bypass of the condenser, and is easily visible to the operator.

**11-16-307 Ventilation Requirements:** Except as provided by subsections 301.5, 302.2, and 303.3, the following ventilation requirements shall be met:

307.1 Facilities Co-located with Residences: Any person that operates perchloroethylene (or other hazardous synthetic solvent) dry cleaning equipment in any co-residential facility shall install and operate a vapor barrier room and ventilation system in order to minimize exposure to affected residents. All dry cleaning machines and related equipment that may emit perchloroethylene (solvent) shall be totally enclosed within a vapor barrier room that:

1. Is properly constructed of approved diffusion resistant materials;
2. Is continuously exhausted with a ventilation fan(s) that
  - a. Has a volumetric airflow of at least 1000 actual cubic feet per minute (ACFM),

- b. Produces an air change rate of at least one air change every five minutes, and
  - c. Exhausts all emissions through a stack that extends a minimum of 5 feet above the roof of the residential building or any adjacent building, whichever is higher; and
  - 3. Is maintained in good operating condition.
- 307.2 Non-residential Facilities: Any person that operates perchloroethylene (or other hazardous synthetic solvent) dry cleaning equipment in any non-residential facility shall install and operate a ventilation system in order to minimize exposure to off-site people. Emissions from dry cleaning machines and related equipment shall be captured and exhausted by a ventilation system that:
- 1. Includes shrouds, hoods, rooms, walls, flexible barriers (e.g. plastic sheeting), or other structures designed to capture fugitive emissions;
  - 2. Is exhausted with a ventilation fan(s) that operates whenever the dry cleaning machines and related equipment are operated and:
    - a. Has a volumetric airflow of at least 1000 actual cubic feet per minute (ACFM);
    - b. Produces either:
      - (1) Capture velocities greater than 100 feet per minute at openings of the capture structures of subsection 1, or
      - (2) An air change rate of at least one air change every ten minutes of a working region that has air movement restricted by the structures in subsection 1, and
    - c. Exhausts emissions through a stack that extends a minimum of 5 feet above the roof of the building or any adjacent building, whichever is higher; and
  - 3. Is maintained in good operating condition.

**11-16-308 Water-repellent Treatment and Dip Tank Operations:** A person that performs water-repellent treatment or dip tank operations shall ensure that all of the following requirements are met:

- 308.1 All materials to be treated with solvent water-repelling solutions shall be treated in a closed-loop machine, a converted machine, or a dip tank. Open spraying of water-repelling solution containing more than 1 weight percent solvent is prohibited.
- 308.2 For dip tank operations:
  - 1. The dip tank shall be fitted with a cover that prevents the escape of solvent vapors from the tank and shall remain covered at all times, except when materials are placed in and removed from the dip tank or while the basket is moved into position for draining.
  - 2. After immersion, the materials shall be drained within the covered dip tank until dripping ceases.
  - 3. All materials removed from a dip tank shall be immediately placed into a closed-loop machine or a converted machine for drying and not removed from the machine until the materials are dry.

**11-16-309 Good Operating Practices:** The owner/operator of any dry cleaning machine or related equipment shall ensure that all of the following requirements are met:

- 309.1 Operation and maintenance requirements: The trained operator, or his/her designee, shall operate and maintain all components of the dry cleaning system in accordance with the requirements of this section and the conditions specified in the facility's operating permit. For operations not specifically addressed, the components shall be operated and maintained in accordance with the manufacturer's recommendations. Each operation and maintenance function and the date performed shall be recorded on an operation and maintenance checklist.
  - 1. Refrigerated condensers shall:
    - a. Be operated to ensure that exhaust gases are recirculated until the air-vapor stream temperature on the outlet side of the

refrigerated condenser, downstream of any bypass, is less than or equal to 45°F and

- b. For closed-loop machines and converted machines that are installed or modified after December 21, 1994: have a drying sensor/controller that is designed to extend the drying time at least 4 minutes beyond the point that solvent recovery rate is less than 40 ml/min or solvent vapor concentration in the drum is less than 8600 ppmv (measured as Perc). Drying sensors shall be maintained in good operating condition and properly operated at all times.
2. Primary control systems, other than refrigerated condensers, shall be operated to ensure that exhaust gases are recirculated until the solvent concentration in the drum is less than or equal to 8,600 ppmv (measured as Perc) at the end of the drying cycle, before the machine door is opened and any fugitive control system activates.
3. Vapor adsorbers used as a primary control system or secondary control system shall be operated to ensure that air and solvent vapors are recirculated at less than 45°F or at the temperature recommended by the manufacturer for optimum adsorption. These vapor adsorbers shall be desorbed according to manufacturers recommendations but not less frequently than minimum requirements of subsection 305.4.2.d. No solvent vapors shall be routed to the atmosphere during routine operation or desorption.
4. During the interim period until prohibitions of Section 304 and compliance with the requirements of sections 301 and 303, an existing facility with a transfer machine or a vented machine shall operate any existing vapor adsorber, which functions at the end of the drying cycle, to meet the following requirements:
  - a. Emissions of synthetic solvents to the atmosphere shall be reduced by at least 90 percent by weight or to a solvent concentration of less than 100 ppmv, measured as methane, C<sub>1</sub>, (50 ppmv as Perc) at the outlet without dilution.
  - b. Desorption shall be performed periodically. The frequency, at a minimum, shall be each time all dry cleaning equipment exhausted to the device has cleaned a total of three pounds of materials for each pound of activated carbon (or other adsorbent). Desorption shall be performed with the minimum steam pressure and air flow capacity specified by the manufacturer.
  - c. Once desorption is complete, the adsorbent (carbon) bed shall be fully dried according to the manufacturer's instructions.
  - d. No vented solvent vapors shall bypass the vapor adsorber to the atmosphere.
5. Effective April 1, 1996, the trained operator, or her/his designee, shall check for solvent breakthrough at the outlet of any vapor adsorption system (external vapor adsorber, secondary control system, and any fugitive control system subject to subsection 305.4.2) that exhausts to the atmosphere, at least on a weekly basis. The operator shall also perform a weekly check for fugitive emissions from machines with fugitive control systems subject to subsection 305.4.2; the detector shall be held 6 inches from the center of an open loading door immediately upon opening the door and prior to unloading cleaned materials. The results of all checks shall be entered on an operation and maintenance checklist. The breakthrough check shall be performed while the vapors are venting to the vapor adsorption system at the end of the last drying cycle prior to a regular desorption using one of the following techniques:
  - a. A colorimetric detector tube,
  - b. A halogenated-hydrocarbon detector,

- c. A portable gas analyzer, or
  - d. An alternative method approved by the APCO that meets provisions of Section 601.
6. Cartridge filters and adsorptive cartridge filters shall be handled using one of the following methods:
    - a. Drained in the filter housing, before disposal, for no less than: 24 hours for cartridge filters and 48 hours for adsorptive cartridge filters. If the filters are then transferred to a separate device to further reduce the volume of solvent, this treatment shall be done in a system that routes any vapor to a primary control system, with no exhaust to the atmosphere or workroom.
    - b. Dried, stripped, sparged, or otherwise treated, within the sealed filter housing, to reduce the volume of solvent contained in the filter.
  7. A still, and any muck cooker, shall not exceed 75 percent of its capacity, or an alternative level recommended by the manufacturer. A still, and any muck cooker, shall cool to 100°F (38°C) or less before emptying or cleaning.
  8. Button and lint traps shall be cleaned each working day and the lint placed in a tightly sealed container.
  9. All parts of the dry cleaning system where solvent may be exposed to the atmosphere or workroom shall be kept closed at all times except when access is required for proper operation and maintenance.
  10. Waste water evaporators shall be manually filled and operated to ensure that no visible liquid solvent or visible emulsion is allowed to vaporize. An evaporator shall be directly vented outside the facility unless a secondary phase separator and a liquid phase carbon adsorber are used to remove solvent from the waste water. A secondary phase separator shall be equipped with a sight gauge (or solvent detector/alarm) and a drain valve. Equipment shall be maintained according to manufacturer's recommendations. As an alternative to evaporation, waste water shall be properly stored and transported as hazardous waste in accordance with subsection 11.
  11. All waste from dry cleaning operations including solvent still residue; filter waste; solvent-laden lint; and used filtration cartridges must be maintained and transported in sealed non-reactive containers and shall be treated or disposed of as set forth in California State law regarding hazardous waste disposal as described in Title 22, Division 4.5 of the California Code of Regulations.
- 309.2 Leak check and repair requirements: Effective December 21, 1994, the trained operator, or her/his designee, shall conduct and maintain an effective leak check monitoring and repair program. The facility shall use a leak inspection checklist that includes the following components: hose and pipe connections, unions, couplings, valves, door gaskets, filter head gaskets, pumps, solvent base tanks, solvent and waste storage containers, water separators, filter sludge recovery units or muck cookers, distillation units and condensers, diverter valves, lint basket, lint storage, and cartridge filter housings. The trained operator, or her/his designee, shall record the status of each component on the checklist.
1. Effective December 21, 1994 the trained operator, or her/his designee, shall inspect the dry cleaning system for liquid leaks and perceptible vapor leaks on a weekly basis.
  2. Effective April 1, 1996, the trained operator, or her/his designee, shall inspect the dry cleaning system for vapor leaks (instead of perceptible leaks) on a weekly basis using one of the following techniques:
    - a. A halogenated-hydrocarbon detector,
    - b. A portable gas analyzer measuring 1 cm. away from the dry cleaning system according to ARB Test Method 21 (17 CCR, Section 94124), or



- c. An alternative method approved by the APCO that meets provisions of Section 601.
- 3. Any liquid leak, perceptible vapor leak, or vapor leak that has been detected by the operator shall be noted on the checklist and repaired according to the requirements of this section. If the leak is not repaired at the time of detection, the leaking component shall be physically marked or tagged in a manner that is readily observable by a District inspector.
- 4. Any liquid leak, perceptible vapor leak, or vapor leak detected by the District, which has not been so noted on the checklist and marked on the leaking component of the dry cleaning system, shall constitute a violation of this section. For enforcement purposes, the District shall identify the presence of a vapor leak by determining solvent concentration:
  - a. With a portable analyzer measured 1 cm. away from the dry cleaning system according to ARB Test Method 21 (17 CCR, Section 94124) or
  - b. By an alternative method approved by the APCO that meets provisions of Section 601.
- 5. Any liquid leak or vapor leak shall be repaired within 24 hours of detection.
  - a. If repair parts are not available at the facility, the parts shall be ordered within two working days of detecting such a leak. Such repair parts shall be installed within five working days after receipt. A facility with a leak that has not been repaired by the end of the 15th working day after detection shall not operate the dry cleaning equipment, until the leak is repaired, without a leak-repair extension from the District.
  - b. The APCO may grant a leak-repair extension to a facility, for a single period of 30 days or less, if the APCO makes these findings:
    - (1) The delay in repairing the leak could not have been avoided by action on the part of the facility.
    - (2) The facility used reasonable preventive measures and acted promptly to initiate the repair.
    - (3) The leak would not significantly increase Perc exposure near the facility.
    - (4) The facility is in compliance with all other requirements of this section and has a history of compliance.

**11-16-310 Environmental Training Requirements:** The facility shall have one or more trained operators beginning on April 1, 1996 for existing facilities or three months after commencement of operations for new facilities.

310.1 A trained operator shall be the owner, the operator, or another employee of the facility, who successfully completes the initial course of an environmental training program to become a trained operator. Evidence of successful completion of the initial course shall be the original certificate record of completion issued pursuant to 17 CCR, Section 93110. The trained operator shall be a full-time employee of the facility. Except for the provisions of subsection 310.3.2, one person cannot serve as the trained operator for two or more facilities simultaneously.

310.2 Each trained operator shall successfully complete the refresher course of an environmental training program at least once every three years. Evidence of successful completion of each refresher course shall be the date of the course and the instructor's signature on the original certificate record of completion.

310.3 If the facility has only one trained operator and the trained operator leaves the employ of the facility, the facility shall:

1. Clearly enter the departure date of the trained operator into the facility records.
2. Obtain certification for a replacement trained operator within 3 months, except that a trained operator who owns or manages multiple facilities may serve as the interim trained operator at two of those facilities simultaneously for a maximum period of 4 months, by which time each facility must have its own trained operator.
3. If the APCO determines that the initial course of an environmental training program is not reasonably available, the APCO may extend the certification period for a replacement trained operator until 1 month after the course is reasonably available.

## 11-16-400 ADMINISTRATIVE REQUIREMENTS

**11-16-401 Initial Notification:** The owner/operator shall provide the District with all of the following information, in writing by December 21, 1994 or prior to installation of any new machine:

- 401.1 The name(s) of the owner and operator of the facility,
- 401.2 The facility name and location,
- 401.3 Whether or not the facility is co-located with a residence or another commercial business,
- 401.4 The number, types, makes, models, and capacities of all dry cleaning equipment,
- 401.5 All control systems for each dry cleaning machine,
- 401.6 For existing facilities only, the volume (gallons) of solvent purchased by the facility; volume of solvent sent to waste recycler; and net amount of solvent emitted during the previous calendar year. Waste shall be itemized by the total amount of solvent in filter cartridges, still residue, and other waste materials recovered during the reporting period.

**11-16-402 Annual Reporting:** The owner/operator shall maintain an annual report. The facility owner or operator shall furnish this annual report (as a part of the permit update questionnaire) to the District by the date specified by the District. The annual report shall include all of the following:

- 402.1 A copy of the record of completion and the dates of employment for each trained operator.
- 402.2 The total of the pounds of materials cleaned in the reporting period.
- 402.3 The total volume (gallons) of solvent used for all solvent additions (or solvent consumption) in the reporting period. Records shall include inventory of solvent at start of reporting period, inventory of solvent at end of reporting period, and total purchases of solvent for the reporting period. Solvent consumption is amount of solvent purchased plus decrease in inventory (or minus increase in inventory).
- 402.4 The total amount of solvent in waste received by licensed waste hauler or recycler in the reporting period:
  1. Report the amount of still residue and the fraction of solvent in still residue;
  2. Report the number of cartridge and adsorptive cartridge filters and the amount of solvent per filter cartridge;
  3. Report the amount of other waste and the fraction of solvent in other waste;
  4. The total amount of solvent in waste equals the solvent in still residue plus the solvent in filter cartridges plus the solvent in other waste,
- 402.5 The average facility mileage, determined from solvent consumption within the reporting period, as follows:

$$\frac{\text{Total Pounds of Materials Cleaned}}{\text{Total Gallons of Solvent Used}}$$

**11-16-403 Compliance Schedule:** Table 11-16-1 summarizes applicable compliance dates for this rule. New and replacement machines generally shall comply with final

requirements upon commencement of operations. A facility shall comply with applicable provisions of this rule as follows:

403.1 Dates of compliance for equipment, operations, and maintenance:

1. December 21, 1994:
    - a. Submit initial notification form to District (Section 401),
    - b. Keep required records, retain for annual reporting (sections 501 and 402),
    - c. Conduct leak check and repair program; checklists (subsection 309.2)
    - d. Other good operating practices, maintenance checklists (Section 309)
    - e. Regularly desorb vapor adsorbers (subsection 309.1)
    - f. Water repelling requirements apply (Section 308).
  2. October 1, 1995, for vented machines at existing facilities (Section 301.1):
    - a. Declare option for conversion or replacement and
    - b. For conversions: submit a completed application for Authority to Construct.
  3. April 1, 1996:
    - a. Conversions for vented machine must be complete (subsections 301.1.1, 304.5, and 305.2);
    - b. Perform vapor leak checks and vapor adsorber breakthrough checks (subsections 305.6, 309.1.5 and 309.2.2); and
    - c. Environmental training requirements for existing facilities (Section 310).
  4. October 1, 1996: Submit a complete application for Authority to Construct for co-residential facilities (Section 303).
  5. April 1, 1997, for existing co-residential facilities:
    - a. Install/modify machines, ventilation, and vapor barrier rooms (Section 303 and subsection 307.1);
    - b. Fugitive control systems requirements (subsection 305.4).
  6. April 1, 1998, for vented machines and transfer machines to be replaced and ventilation systems at existing non-residential facilities: submit a complete application for Authority to Construct for new equipment.
  7. October 1, 1998:
    - a. All transfer machines and all vented machines shall be removed from service (Section 304).
    - b. Install/modify ventilation systems at existing non-residential facilities (subsections 301.5 and 307.2);
- 403.2 For compliance with Section 310, "Environmental Training Requirements", an alternative date of compliance shall apply if the District determines that the initial course of an environmental training program for solvent dry cleaning operations is not reasonably available.
1. For existing facilities in the District, if the initial course is not reasonably available by October 1, 1995, the alternative date of compliance for Section 310 shall be 6 months from the date the District determines that the initial course is reasonably available.
  2. For each new facility in the District, if the initial course is not reasonably available within the period from 3 months prior to 2 months following commencement of operation, the alternative date of compliance for Section 310 only shall be 1 month from the date the District determines that the initial course is reasonably available.

## 11-16-500 MONITORING AND RECORDS

**11-16-501 Recordkeeping:** The owner/operator shall maintain records for the specified time period, beginning on December 21, 1994. These records, or copies thereof, shall be

accessible at the facility at all times. All of the following records shall be retained for at least 2 years or until the next District inspection of the facility, whichever period is longer:

- 501.1 For each dry cleaning machine, a log showing the date and the pounds of materials cleaned per load.
- 501.2 Solvent consumption: Retain all purchase and delivery receipts for solvent. The total inventory of solvent on hand at a facility shall be recorded at the beginning and the end of the annual reporting period. For only those facilities with solvent tanks that are not directly filled by the solvent supplier upon delivery, the date(s) and gallons of solvent added to the solvent tank of each dry cleaning machine.
- 501.3 Waste Records: List the volume of waste recovered from solvent still or other cooker; the number and type of filter cartridges removed for disposal, the amount of other waste recovered; and the volume of water recovered and disposition (evaporation or disposal). Records must include dates of waste recovery, dates of filter changes, and hazardous waste disposal manifests (or cumulative annual statements from recycler/hauler).
- 501.4 The completed operation and maintenance checklists required by subsection 309.1 and the leak inspection checklists required by the subsection 309.2:
  - 1. The operation and maintenance checklist shall include, at a minimum, the following requirements: temperature of chilled air at outlet of a refrigerated condenser; concentration of Perc (solvent) in the drum at end of drying cycle where monitoring is required; times/dates of desorption for any vapor adsorber; pounds of materials and number of loads cleaned between desorptions; and the results of the weekly breakthrough check for vapor adsorbers. The amount (dry weight in pounds) of activated carbon or other adsorbent material contained in the vapor adsorber shall be posted on the equipment or noted on the vapor adsorber operation records.
  - 2. Records shall include dates of leak inspections performed; dates leaks were detected; description of leaks found: liquid leaks, perceptible vapor leaks, or vapor leaks; leaks that were not repaired at the time of detection, a record of the leaking component(s) of the dry cleaning system awaiting repair and the action(s) taken to complete the repair; and dates of final repair. The record shall include copies of purchase orders or other written records showing when the repair parts were ordered and/or service was requested.
- 501.5 For dry cleaning equipment installed after October 1, 1994, the manufacturer's operating manual for all components of the dry cleaning system including the abatement systems shall be retained for the life of the equipment.
- 501.6 The original record of completion for each trained operator shall be retained during the employment of that person. A copy of the record of completion shall be retained for an additional period of two years beyond the separation of that person from employment at the facility. The record shall clearly show the terms of employment for all trained operators.

**11-16-502 Equipment Certification / Testing Requirements:** For a given design, a single test program shall be conducted to meet the specifications for any secondary control system (subsection 305.3.4); any equivalent closed-loop recovery systems (subsections 305.1.5.a and 305.2.2.c); and any vented drying cabinet (subsection 305.5.1). The person or organization conducting the test program shall prepare a written test plan that describes, in detail, the dry cleaning machine and control systems being tested, the test protocol, and the test method. The testing methods shall comply with procedures found in Title 17, California Code of Regulations, Section 93109 (h). All test plans and test results shall be made available to the District and the Executive Officer of the California Air Resources Board upon request and shall serve as certification material if standards required by this Rule are met.

## 11-16-600 MANUAL OF PROCEDURES

**11-16-601 Determination of Compliance -- Emissions:** Compliance with subsections 305.4.2.a, 305.4.2.b, 305.5.1, 305.6, 306.1, 309.1.4.a, 309.1.5.c, 309.1.5.d, 309.2.2.b, 309.2.2.c, and 309.2.4 shall be determined using the following Test Methods or procedures:

- 601.1 The Manual of Procedures, Volume IV, ST-31, or
- 601.2 EPA Reference Method 18 or EPA Reference Method 21 (40 CFR Part 60, Appendix A); ARB Test Method 21 (17 CCR, Section 94124), or ARB Method 422 (17 CCR, Section 94132).
- 601.3 An alternative test method may be used on a case-by-case basis provided that written approval has been granted by the APCO. Such approval shall be based upon demonstrated equivalency to the required test procedure.
- 601.4 A source shall be considered in violation of this rule if the applicable concentration or control efficiency measured by any of the applicable referenced test methods violates any standard of this rule.

**11-16-602 Determination of Compliance -- Air Velocity, Volumetric Flowrate, and Air Change Rate:** Compliance with subsections 305.4.2.a, 307.1.2, and 307.2.2 shall be determined using the following Test Methods or procedures:

- 602.1 Testing of Ventilation Systems (Section 9), Industrial Ventilation, A Manual of Recommended Practices, American Conference of Governmental Industrial Hygienists (Library of Congress # 62-12929),
- 602.2 The Manual of Procedures, Volume IV, ST-17, or
- 602.3 EPA Reference Method 2C (40 CFR Part 60, Appendix A).
- 602.4 An alternative test method may be used on a case-by-case basis provided that written approval has been granted by the APCO. Such approval shall be based upon demonstrated equivalency to the required test procedure.
- 602.5 A source shall be considered in violation of this rule if the applicable air velocity, volumetric flowrate, or air change rate measured by any of the applicable referenced test methods violates any standard of this rule.

**11-16-603 Test Plans and Reports:**

- 603.1 All test plans and protocols shall be submitted for approval to the District's Source Test Section at least 2 weeks prior to a test.
- 603.2 All test results and reports shall be submitted to the District's Source Test Section within 30 days of the testing period.

**11-16-604 Analysis of Solvent Content of Water Repellent Solution and Other Liquid Materials:** Samples of water repelling solution as specified in subsection 308.1, samples of waste or other liquid materials shall be analyzed as prescribed in the Manual of Procedures, Volume III, Method 37.

**11-16-605 Determination of Cancer Risk:** Determination of cancer risk for subsections 301.5 and 302.2.1 shall be conducted using the District's Health Risk Screening Analysis Guidelines.

*(Amended June 15, 2005)*