

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

RULE 1421 -- CONTROL OF PERCHLOROETHYLENE EMISSIONS FROM DRY CLEANING SYSTEMS

(Adopted December 9, 1994)(Amended June 13, 1997)(Amended December 6, 2002)

(a) Purpose

The purpose of the rule is to protect public health by reducing perchloroethylene emissions from dry cleaning systems by transitioning them to non-perchloroethylene alternatives. Facilities using perchloroethylene dry cleaning systems are required to comply with applicable portions of this rule and the federal National Emission Standard for Hazardous Air Pollutants (NESHAP) for Source Categories: Perchloroethylene Dry Cleaning Facilities (40 Code of Federal Regulations [CFR] 63.320, *et seq*) and the state Airborne Toxic Control Measure (ATCM) for Emissions of Perchloroethylene from Dry Cleaning Operations (17 California Code of Regulations [CCR] 93109, *et seq*).

(b) Applicability

The rule applies to all persons owning or operating a perchloroethylene dry cleaning facility.

(c) Definitions

For the purposes of this rule, the following definitions shall apply.

- (1) ADSORPTIVE CARTRIDGE FILTER means a replaceable cartridge filter that contains diatomaceous earth or activated clay as the filter medium.
- (2) ALTERNATIVE CLEANING TECHNOLOGY means a textile cleaning technology which may include, but is not limited to: water-based wet cleaning, carbon dioxide (CO₂) cleaning, or any other non-perchloroethylene cleaning solvent that complies with Rule 1401 requirements.
- (3) CARTRIDGE FILTER means 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.
- (4) CLOSED-LOOP MACHINE means dry cleaning equipment in which

washing, extraction, and drying are all performed in the same single unit (also known as dry-to-dry) and which recirculates the perchloroethylene-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 completed and while the machine door is open.

- (5) CO-LOCATED WITH A RESIDENCE means 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.
- (6) CONVERTED MACHINE means a vented machine that has been modified to be a closed-loop machine by eliminating the aeration step, and installing a primary control system, and providing for recirculation of the perchloroethylene-laden vapor with no exhaust to the atmosphere. A converted machine allows 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.
- (7) COOL DOWN means 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 perchloroethylene in the drum.
- (8) COMPLIANCE PERIOD means the time from the effective date of this rule in the District until a facility must be in compliance with the specific requirements of this rule.
- (9) DESORPTION means the 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.
- (10) DIP TANK OPERATION means immersion of materials in a solution that contains perchloroethylene, for purposes other than dry cleaning, in a tank or container that is separate from the dry cleaning equipment.
- (11) DISTRICT means the South Coast Air Quality Management District.
- (12) DRUM means the rotating cylinder or wheel of the dry cleaning machine that holds the materials being cleaned.
- (13) DRY CLEANING EQUIPMENT means any machine, device, or

apparatus used to dry clean materials with perchloroethylene or to remove residual perchloroethylene from previously cleaned materials. Dry cleaning equipment may include, but is not limited to, a transfer machine, a vented machine, a converted machine, a closed-loop machine, a reclaimer, or a drying cabinet.

- (14) DRY CLEANING FACILITY means one or more dry cleaning systems which are located on one or more contiguous properties within the District in actual physical contact or separated solely by a public roadway, or other public right-of-way, and are owned or operated by the same person (or by persons under common control).
- (15) DRY CLEANING SYSTEM means all of the following equipment, devices, or apparatus associated with the perchloroethylene dry cleaning process: dry cleaning equipment; filter or purification systems; waste holding, treatment, or disposal systems; perchloroethylene supply systems; dip tanks; pumps; gaskets; piping, ducting, fittings, valves, or flanges that convey perchloroethylene-contaminated air; and control systems.
- (16) DRYING CABINET means a housing in which materials previously cleaned with perchloroethylene 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.
- (17) DRYING CYCLE means the process used to actively remove the perchloroethylene 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.
- (18) ENVIRONMENTAL TRAINING PROGRAM means an initial course or a refresher course of the environmental training program for perchloroethylene dry cleaning operations that has been authorized by the Air Resources Board according to the requirements of 17 CCR, Section 93110.
- (19) EQUIVALENT CLOSED-LOOP VAPOR RECOVERY SYSTEM means any device or combination of devices that achieves, in practice, a perchloroethylene recovery performance equal to or exceeding that of refrigerated condensers.

- (20) EXISTING FACILITY means any dry cleaning facility that was in operation prior to December 6, 2002. Facility relocations within the jurisdictional boundaries of the District shall be considered existing facilities for the purpose of this rule.
- (21) FACILITY means any person or persons who own or operate perchloroethylene dry cleaning equipment which are owned or operated by the same person or persons, and are located on the same parcel or contiguous parcels.
- (22) FACILITY MILEAGE means the efficiency of perchloroethylene use at a facility, expressed as the pounds of materials cleaned per gallon of perchloroethylene used, and calculated for all dry cleaning machines at the facility over a specified time period.
- (23) FUGITIVE CONTROL SYSTEM is a device or apparatus that collects fugitive perchloroethylene 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 perchloroethylene prior to exhaust of the vapor to the atmosphere.
- (24) FULL-TIME EMPLOYEE means any person who is employed at the dry cleaning facility and averages at least thirty hours per week in any 90-day period.
- (25) GALLONS OF PERCHLOROETHYLENE USED means the volume of perchloroethylene, in gallons, introduced into the dry cleaning equipment, and not recovered at the facility for re-use on-site in the dry cleaning equipment, over a specified time period.
- (26) HALOGENATED-HYDROCARBON DETECTOR means 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.
- (27) LIQUID LEAK means a leak of liquid containing perchloroethylene of more than 1 drop every 3 minutes.
- (28) MAJOR SOURCE is any dry cleaning facility that emits or has the potential to emit more than 9.1 megagrams per year (10 tons per year) of perchloroethylene to the atmosphere. In lieu of measuring a facility's potential to emit perchloroethylene emissions or determining a facility's potential to emit perchloroethylene emissions, a dry cleaning facility is a major source if it includes only dry-to-dry machine(s) and has a total

- yearly perchloroethylene consumption greater than 8,000 liters (2,100 gallons).
- (29) MATERIALS mean wearing apparel, draperies, linens, fabrics, textiles, rugs, leather, and other goods that are being dry cleaned.
 - (30) MUCK COOKER means a device for heating perchloroethylene-laden waste material to volatilize and recover perchloroethylene.
 - (31) NEW FACILITY means a dry cleaning facility that was not in operation before December 6, 2002. Facility relocations, within the jurisdictional boundaries of the District, shall not be considered new facilities for the purposes of this rule.
 - (32) PERCHLOROETHYLENE (PERC) means the substance with the chemical formula C_2Cl_4 , 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.
 - (33) PERCHLOROETHYLENE DRY CLEANING OR DRY CLEANING means the process used to remove soil, greases, paints, and other unwanted substances from materials with perchloroethylene.
 - (34) POUNDS OF MATERIALS CLEANED PER LOAD means 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.
 - (35) PRIMARY CONTROL SYSTEM means a refrigerated condenser, or an equivalent closed-loop vapor recovery system approved by the District.
 - (36) RECLAIMER means a machine, device, or apparatus used only to remove residual perchloroethylene from materials that have been previously cleaned in a separate piece of dry cleaning equipment.
 - (37) REFRIGERATED CONDENSER means a closed-loop vapor recovery system into which perchloroethylene vapors are introduced and trapped by cooling below the dew point of the perchloroethylene.
 - (38) SECONDARY CONTROL SYSTEM means a device or apparatus that reduces the concentration of perchloroethylene 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.
- (39) SELF-SERVICE DRY CLEANING MACHINE means a perchloroethylene dry cleaning machine that is loaded, activated, or unloaded by the customer.
 - (40) SENSITIVE RECEPTOR LOCATIONS include schools, daycare centers, hospitals, and convalescent homes.
 - (41) SEPARATOR means any device used to recover perchloroethylene from a water-perchloroethylene mixture.
 - (42) STILL means a device used to volatilize and recover perchloroethylene from contaminated solvent removed from the cleaned materials.
 - (43) TRAINED OPERATOR means the owner, the operator, or an employee of the facility, who has completed and holds a valid 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.
 - (44) TRANSFER MACHINE means a combination of perchloroethylene dry cleaning equipment in which washing and extraction are performed in one unit and drying is performed in a separate unit.
 - (45) VAPOR ADSORBER means a bed of activated carbon or other adsorbent into which perchloroethylene vapors are introduced and trapped for subsequent desorption.
 - (46) VAPOR LEAK means an emission of 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 perchloroethylene exceeding 50 ppmv as methane or 25 ppmv as perchloroethylene as indicated by a portable analyzer.
 - (47) VENTED MACHINE means 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, either directly or through a control device.
 - (48) WASTE WATER EVAPORATOR means a device that vaporizes perchloroethylene contaminated waste water through the addition of thermal or chemical energy, or through physical action.
 - (49) WATER-REPELLING OPERATIONS means the treatment of materials with a water-repellent solution that contains perchloroethylene.
 - (50) WET CLEANING means a process which is water-based and uses

computer-controlled washers and dryers, detergents, and specialized finishing equipment.

(d) Equipment Requirements

The owner/operator shall comply with the following prohibitions and requirements.

(1) Prohibition.

(A) On or after June 9, 1996, a person shall not install a converted machine or modify a vented dry cleaning machine to a converted machine.

(B) On or after October 1, 1998, a person shall not operate any transfer system, any vented dry cleaning machine, or any self-service dry cleaning machine.

(C) On or after January 1, 2003, a person shall not perform any dip tank operations in connection with dry cleaning.

(D) On or after January 1, 2003, an owner or operator of a new facility may not operate a perchloroethylene dry cleaning system.

(E) On or after January 1, 2003, an owner or operator of an existing facility shall not install additional perchloroethylene dry cleaning system(s), except as provided in subparagraph (d)(1)(F).

(F) On or after December 6, 2002, an owner or operator of an existing facility shall be allowed to operate its perchloroethylene dry cleaning system(s) until the end of its useful life and, upon replacement, shall be allowed to operate no more than one perchloroethylene dry cleaning system per facility until December 31, 2020, provided the equipment has integral primary and secondary controls. All such facilities shall comply with Rule 1402 and shall not operate a dry cleaning system without a secondary control on and after November 1, 2007.

(G) On or after July 1, 2004, an owner or operator of a dry cleaning facility shall not operate any converted machines.

(2) Perchloroethylene dry cleaning equipment shall meet the following specifications:

(A) A primary control system shall:

(i) operate during both the heated and cool-down phases of the drying cycle and shall reduce the perchloroethylene

- drum concentration in the recirculating air stream to 8,600 ppmv;
- (ii) not exhaust to the atmosphere or workroom;
 - (iii) not require the addition of any form of water to the primary control system that results in the physical contact between water and perchloroethylene; and
 - (iv) consists of a refrigerated condenser which shall:
 - (I) achieve an outlet vapor temperature, downstream of any bypass, of less than or equal to 45°F (7.2°C) during cool-down; and
 - (II) have a graduated thermometer or alternative temperature device with a minimum range from 0°F (-18°C) to 150°F (66°C), which measures the temperature of the outlet vapor stream, downstream of any bypass of the condenser, and is easily visible to the operator.
- (B) An approved equivalent closed-loop vapor recovery system may be used in lieu of a primary control system, if it:
- (i) uses a technology that has been demonstrated, pursuant to the requirements of subdivision (i), to achieve a perchloroethylene drum concentration of 8,600 ppmv or less in each test; and
 - (ii) has a device that measures the perchloroethylene 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. This device shall be installed such that the reading is easily visible to the operator.
- (C) A secondary control system shall:
- (i) 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 following applicable requirements;
 - (ii) not exhaust to the atmosphere or workroom;
 - (iii) not require the addition of any form of water to the

- secondary control system that results in physical contact between the water and perchloroethylene;
- (iv) use a technology that has been demonstrated, pursuant to the requirements of subdivision (i), to achieve a perchloroethylene concentration in the drum of 300 ppmv or less in each test;
 - (v) have a holding capacity of two hundred percent (200%) or greater of the maximum quantity of perchloroethylene vapor expected in the drum prior to the activation of the system; and
 - (vi) for add-on secondary control systems only, the system shall be sized and capable of reducing the perchloroethylene concentration in the drum from 8,600 ppmv or greater to 300 ppmv or less in the maximum volume of recirculating air in the dry cleaning machine and all contiguous piping.
- (3) Specifications for Other Perchloroethylene Dry Cleaning Equipment
- (A) A drying cabinet shall:
 - (i) be fully enclosed; and
 - (ii) be exhausted via one of the following methods:
 - (I) to a control system that has been demonstrated, pursuant to the requirements of subdivision (i), to achieve a perchloroethylene concentration of 100 ppmv or less in each test, measured at the outlet without dilution; or
 - (II) to a control system that reduces the concentration of perchloroethylene in a closed system with no exhaust to the atmosphere or workroom.
 - (B) A converted machine shall meet all of the following requirements, as demonstrated on-site to the District, upon conversion and on or before June 9, 1996:
 - (i) All process vents that exhaust to the atmosphere or workroom during washing, extraction, or drying shall be sealed.
 - (ii) The converted machine shall use an appropriately-sized primary control system to recover perchloroethylene vapor

during the heated and cool-down phases of the drying cycle.

- (I) A refrigerated condenser shall be considered appropriately sized, for a machine converted on or after May 4, 1994, if the water-cooled condensing coils are replaced with refrigerant-cooled condensing coils; and the compressor of the refrigerated condenser shall have a capacity, in horsepower (hp) that is no less than the minimum capacity, determined as follows:

$$\text{Min. Cap. (hp)} = \frac{\text{Cap. of Machine (lbs)}}{12}$$

- (II) A refrigerated condenser shall be considered appropriately sized, for a machine converted prior to May 4, 1994, if the refrigerated condenser meets the specifications for new conversions in subclause (d)(3)(B)(ii)(I); or the refrigerated condenser achieves, and maintains 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 (7.2°C) within 10 minutes of the initiation of cool-down.

- (III) An equivalent closed-loop vapor recovery system shall be considered 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 clause (d)(2)(B).

- (iii) 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.

- (e) Good Operating Practices for Perchloroethylene Dry Cleaning Systems

The owner/operator shall not operate a perchloroethylene dry cleaning system unless all of the following requirements are met:

- (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.
 - (A) Each operation and maintenance function and the date performed shall be recorded on the checklist provided by the District. The operation and maintenance checklist shall include, at a minimum, the following requirements:
 - (i) Refrigerated condensers shall 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 (7.2°C).
 - (ii) Primary control systems, other than refrigerated condensers, shall be operated to ensure that exhaust gases are recirculated until the perchloroethylene concentration in the drum is less than or equal to 8,600 ppmv at the end of the drying cycle, before the machine door is opened and any fugitive control system activates.
 - (iii) Vapor adsorbers used as a primary control system or secondary control system shall be operated to ensure that exhaust gases are recirculated at the temperature specified by the District, based on the manufacturer's recommendations for optimum adsorption. These vapor adsorbers shall be desorbed according to the conditions specified by the District in the facility's operating permit, including a requirement that no perchloroethylene vapors shall be routed to the atmosphere during routine operation or desorption.
 - (iv) The cooling coils must be removed and cleaned every two years by a qualified individual from a repair company licensed by the State of California to handle refrigerant.

- (v) The main door, still door, button trap, and lint trap gaskets must be replaced every two years.
 - (vi) Cartridge filters and adsorptive cartridge filters shall be handled using one of the following methods:
 - (I) 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 perchloroethylene, 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.
 - (II) Dried, stripped, sparged, or otherwise treated, within the sealed filter housing, to reduce the volume of perchloroethylene contained in the filter.
 - (vii) 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.
 - (viii) Button and lint traps shall be cleaned each working day and the lint placed in a tightly sealed container.
 - (ix) All parts of the dry cleaning system where perchloroethylene 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.
 - (x) Waste water evaporators shall be operated to ensure that no liquid perchloroethylene or visible emulsion is allowed to vaporize.
- (2) Leak check and repair requirements. The trained operator, or her/his designee, shall inspect the dry cleaning system for liquid leaks and vapor leaks. The trained operator, or her/his designee, shall record the status of each component on the checklist provided by the District.
- (A) The dry cleaning system shall be inspected at least once per week for liquid leaks and for vapor leaks, beginning June 9, 1996, using one of the following techniques:
 - (i) a halogenated-hydrocarbon detector; or

- (ii) a portable gas analyzer or an alternative method approved by the District.
- (B) Any liquid 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 subparagraph. 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.
- (C) Any liquid 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 the concentration of perchloroethylene with a portable analyzer:
 - (i) according to ARB Test Method 21 (17 CCR, Section 94124, March 28, 1986); and
 - (ii) measured 1 cm away from the dry cleaning system.
- (D) Any liquid leak or vapor leak shall be repaired within 24 hours of detection.
 - (i) 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, unless a leak-repair extension is granted from the District.
 - (ii) The District may grant a leak-repair extension to a facility, for a single period of 30 days or less, if the District makes these findings:
 - (I) the delay in repairing the leak could not have been avoided by action on the part of the facility;
 - (II) the facility used reasonable preventive measures and acted promptly to initiate the repair;
 - (III) the leak would not significantly increase perchloroethylene exposure near the facility; and

- (IV) the facility is in compliance with all other requirements of this section and has a history of compliance.
- (3) Environmental training requirements. The facility shall have one or more trained operators.
 - (A) 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 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 clause (e)(3)(C)(ii), one person cannot serve as the trained operator for two or more facilities simultaneously.
 - (B) 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 record of completion.
 - (C) If the facility has only one trained operator and the trained operator leaves the employ of the facility, the facility shall:
 - (i) notify the District in writing within 30 days of the departure of the trained operator;
 - (ii) 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; and
 - (iii) if the District determines that the initial course of an environmental training program is not reasonably available, the District may extend the certification period for a replacement trained operator until 1 month after the course is reasonably available.
- (f) Water-repelling Operations

No person shall perform water-repelling operations, unless all materials to be treated with perchloroethylene water-repelling solutions are treated in a closed-loop machine.

(g) Reporting Requirements for Facilities with Perchloroethylene Dry Cleaning Systems

(1) Initial Reporting: For an existing facility that is operating dry cleaning equipment, the owner /operator shall submit an initial report by July 1, 2003. For a new facility starting business between the December 6, 2002 and January 1, 2003, the owner /operator shall submit an initial report by January 1, 2007. The initial report shall include all the following information:

- (A) Facility name, AQMD ID number, facility address, owner/operator name, and telephone number;
- (B) The distance from the center of the facility to the property line of the nearest commercial/industrial building, and to the nearest residence;
- (C) Sensitive receptor locations, if they are located within one-quarter of a mile from the center of the facility;
- (D) Annual operating information, for the preceding year, including pounds of clothes cleaned, gallons of solvent purchased, gallons of solvent starting at the beginning of the year, gallons of solvent remaining at the end of the year, gallons of still oil waste, number and type of filter cartridges disposed, and copies of all waste manifests; and
- (E) Equipment original date of purchase or equipment manufacturer date

(2) Quadrennial Update Reporting: By January 1, 2007 and every four years after that date, the owner/operator shall submit to the Executive Officer an update report including the information specified in paragraph (g)(1).

(h) Recordkeeping for Facilities with Perchloroethylene Dry Cleaning Systems

The owner/operator shall maintain records in accordance with the District's Rule 1421 Recordkeeping/Reporting form. These records or copies thereof, shall be available to the District upon request.

(1) 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.

- (A) For each dry cleaning machine, a log showing the date and the pounds of materials cleaned per load.
- (B) Purchase and delivery receipts for perchloroethylene.
For those facilities with solvent tanks that are not directly filled by the perchloroethylene supplier upon delivery, the date(s) and gallons of perchloroethylene added to the solvent tank of each dry cleaning machine.
- (C) The average facility mileage, determined from all perc additions during the year, as follows:

The Total of the Pounds of Materials Cleaned

The Total of the Gallons of Perchloroethylene Used

- (D) The records or receipts that show the completion of the requirements specified in clauses (e)(1)(A)(iv) and (e)(1)(A)(v).
 - (E) The completed leak inspection checklists required by paragraph (e)(2) and the operation and maintenance checklists required by subparagraph (e)(1)(A).
 - (F) For liquid leaks or vapor 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. The record shall include copies of purchase orders or other written records showing when the repair parts were ordered and/or service was requested.
- (2) For dry cleaning equipment installed after December 9, 1994, the manufacturer's operating manual for all components of the dry cleaning system shall be retained for the life of the equipment.
 - (3) 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.
- (i) Perchloroethylene Dry Cleaning Equipment Testing
For a given design, a single test program shall be conducted, in accordance with the following procedures, to meet the specifications in paragraphs (d)(2) and (d)(3). 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.

- (1) Test Program and Scope. A minimum of three tests shall be conducted for each test program on each control system design. All tests for a single test program shall be conducted on a single dry cleaning machine.
 - (A) Test results for a primary control system design, or an add-on secondary control system design, may be applied to a different make/model of dry cleaning machine if the equipment designer or facility demonstrates, to the satisfaction of the District, that:
 - (i) the test results would be representative of the performance of the control system design on the different make/model of dry cleaning machine; and
 - (ii) the control system design is properly sized for the maximum volume of recirculating air in the dry cleaning machine during the drying cycle.
 - (B) Test results for an integral secondary control system design may not be applied to a different make/model of dry cleaning machine.
- (2) Test Conditions. Testing shall be conducted under normal operating conditions, unless otherwise specified.
 - (A) For primary control systems and secondary control systems, each test shall be conducted during the cleaning of one load of materials.
 - (i) The machine shall be filled to no less than 75 percent of its capacity with materials for each test.
 - (ii) The weight of materials shall be recorded for each test.
 - (B) A primary control system shall be tested on a closed-loop machine, or a converted machine, both without a secondary control system.
 - (C) A secondary control system shall be tested on a closed-loop machine.
 - (i) An integral secondary control system shall be tested with the primary control system operating normally.
 - (ii) An add-on secondary control system shall be tested independent of a primary control system and the initial perchloroethylene concentration in the drum shall be 8,600 ppmv or greater.

- (D) For a control system on the exhaust of a drying cabinet, each test shall be conducted following the placement of materials cleaned with perchloroethylene in the drying cabinet. The materials shall be transferred to the drying cabinet and testing shall begin no later than 15 minutes after the end of the washing and extraction process.
 - (i) The drying cabinet shall be filled to no less than 50 percent of its capacity with materials for each test.
 - (ii) The weight of materials shall be recorded for each test.
- (3) Test Method. Equipment shall be tested in accordance with the following methods.
 - (A) For primary control systems and secondary control systems:
 - (i) the temperature of the air in the drum shall be measured and recorded continuously during the entire drying cycle, including the operation of the secondary control system;
 - (ii) sampling shall be conducted as follows:
 - (I) for primary control systems and integral secondary control systems, sampling shall begin at the end of the drying cycle and be completed within 5 minutes;
 - (II) for add-on secondary control systems, sampling shall be done when the concentration of perchloroethylene is 8,600 ppmv or greater and again when the concentration reaches 300 ppmv or less; and
 - (III) sampling shall be completed prior to the opening of the machine door and activation of any fugitive control system.
 - (iii) The perchloroethylene concentration in the drum shall be determined by one of the following methods:
 - (I) A sampling port and valve shall be appropriately placed to draw a sample from the interior of the drum or the lint filter housing. The sampling port shall be connected to a gas chromatograph by one-quarter (1/4) inch, outside diameter, Teflon tubing. Any sampling pump shall have Teflon diaphragms.

The gas chromatograph shall measure the concentrations of perchloroethylene in accordance with ARB Method 422 (17 CCR, Section 94132, December 31, 1991) or NIOSH Method 1003 (NIOSH Manual of Analytical Methods, U.S. Department of Health and Human Services, August 15, 1987).

- (II) A sampling port and valve shall be appropriately placed to draw a sample from the interior of the drum or the lint filter housing. The sampling port shall be connected by one-quarter (1/4) inch outside diameter Teflon tubing to a Tedlar bag. Any sampling pump shall have Teflon diaphragms. The concentration of perchloroethylene in the air sampled shall be measured in accordance with ARB Method 422 (17 CCR, Section 94132, December 31, 1991) or NIOSH Method 1003 (NIOSH Manual of Analytical Methods, U.S. Department of Health and Human Services, August 15, 1987) within 24 hours of sampling. If an independent laboratory is contracted to perform the analysis of the samples, the chain of custody procedures contained in ARB Method 422 or NIOSH Method 1003 shall be followed.
- (B) For a control device on the exhaust of a drying cabinet, sampling and analysis shall be conducted using ARB Method 422 (17 CCR, Section 94132, December 31, 1991) or NIOSH Method 1003 (NIOSH Manual of Analytical Methods, U.S. Department of Health and Human Services, August 15, 1987).
- (C) An alternative test method deemed acceptable by the Executive Officer of the District and the Executive Officer of the Air Resources Board.
- (4) 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.
- (j) Major Sources

All major sources must comply with the requirements of 40 CFR Section 63.320, *et. seq.*

(k) Severability, Effect of Judicial Order

In the event that any portion of this rule is held by judicial order to be invalid, such order shall not affect the validity of the remaining portions of this rule.