

ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT

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

*(Adopted: 12/09/94)*

(a) Purpose

The purpose of the rule is to protect public health by reducing perchloroethylene emissions from dry cleaning systems. This rule will implement 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*). This will be accomplished by requiring perchloroethylene dry cleaning facilities to: phase out transfer, vented, and self-service machines; require the use of a closed loop machine; install primary, secondary, and fugitive controls as appropriate; control evaporator and separator emissions; and institute good operating, reporting, and recordkeeping practices.

(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) ADD-ON or RETROFIT is a system that is designed, offered, purchased, or installed as a separate device to reduce perchloroethylene emissions from the original machine and often accommodates multiple makes and models.
- (2) ADSORPTIVE FILTER CARTRIDGE is a replaceable filter cartridge that uses pleated paper and diatomaceous earth or activated clay as the filtering medium to capture impurities in the solvent.
- (3) AREA SOURCE is any dry cleaning facility that purchases less than 2,100 gallons of perchloroethylene over any given 12 month period.
- (4) CARB means the California Air Resources Board.

- (5) CLOSED LOOP DRY CLEANING MACHINE is any dry cleaning machine with a design that recirculates the perchloroethylene laden vapor through a primary control system with no vent to the atmosphere or work room during the drying cycle, and vents to the atmosphere only through a fugitive control system after the drying cycle is complete and whenever the machine door is open.
- (6) COLORIMETRIC TUBE is any glass tube (sealed prior to use), containing material impregnated with a chemical sensitive to perchloroethylene that is designed to measure the perchloroethylene concentration in air.
- (7) CONVERTED MACHINE is a vented dry cleaning machine that is modified to be a closed loop machine by eliminating the aeration step and installing a primary control system that recirculates the perchloroethylene laden vapor and reduces the drum concentration to 8,600 parts per million by volume (ppmv) perchloroethylene or less, with no vent to the atmosphere or work room during the drying cycle. A converted machine vents to the atmosphere only through a fugitive control system after the drying cycle is complete and whenever the machine door is open.
- (8) COOL DOWN is the portion of the drying cycle beginning after the heating mechanism is deactivated and ending when the drum stops rotating.
- (9) DESORPTION is a process used for the regeneration of activated carbon or other activated material, that is, the removal of the perchloroethylene that has accumulated on the activated carbon or material.
- (10) DIP TANK OPERATION is the process of immersing materials in a tank that holds a solution containing perchloroethylene for purposes other than dry cleaning.
- (11) DIVERTER VALVE is an air flow control device that prevents the air drawn into the dry cleaning machine when the door is open from passing through the add-on or retrofit refrigerated condenser.
- (12) DRUM is the perforated cylinder of the dry cleaning machine that holds the materials being cleaned during the cleaning cycle.
- (13) DRY is a descriptive quality achieved by the materials being cleaned that have gone through a complete drying cycle as recommended by the manufacturer or distributor and are free from any liquid drips.
- (14) DRY CLEANING MACHINE is any machine, device, or apparatus used to clean materials with perchloroethylene or to remove residual perchloroethylene from previously cleaned materials.

- (15) DRY CLEANING SYSTEM is any one or combination of the following machines or systems: washer; dryer; emission control system; filter, regeneration, distillation, or purification systems; waste holding, storage, disposal, or reduction system; perchloroethylene supply system; dip tank; pump; gasket; and associated piping, ducting, hoses, fittings, flanges, and valves.
- (16) DRY-TO-DRY MACHINE is a dry cleaning machine that washes, extracts, and dries a batch of materials within a single machine in one unbroken cycle that starts with dry materials and ends with dry materials.
- (17) DRYER or RECLAIMER is a machine used to remove the cleaning solution, such as perchloroethylene, from previously washed materials by tumbling them in a heated air stream.
- (18) DRYING CYCLE is the process of removing residual perchloroethylene from the materials being cleaned after perchloroethylene washing and extraction. The drying cycle begins when the heating coils are activated and ends when the fan is deactivated.
- (19) ENVIRONMENTAL TRAINING PROGRAM is a training and certification program approved by the California Air Resources Board pursuant to the provisions of 17 CCR, Section 93110.
- (20) EQUIVALENT PERCHLOROETHYLENE RECOVERY SYSTEM is any device or combination of devices that achieves, in practice, a perchloroethylene recovery equal to or exceeding that of refrigerated condensers.
- (21) EXISTING EQUIPMENT is dry cleaning machine permitted and operating before December 9, 1994.
- (22) EXISTING FACILITY is any facility where the most recent dry cleaning machine was installed or modified before December 9, 1991. Relocations on or after December 9, 1994 shall be treated as new facilities.
- (23) FACTORY ORIGINAL is a system that is purchased and operated as originally designed, offered, and installed by the manufacturer or distributor without modifications.
- (24) FILTER is a porous device through which a solution, such as perchloroethylene, is passed to remove various contaminants. A filter includes, but is not limited to, the lint and button trap, filter cartridge, tubular filter, regenerative filter, prefilter, polishing filter, and spin disk filter.
- (25) FUGITIVE CONTROL SYSTEM is any device or combination of devices that collects the perchloroethylene vapors escaping from the main door, button trap, lint trap, and still whenever any one of these access points are open and routes these vapors to a control device that reduces the concentration of perchloroethylene prior to venting to the atmosphere.

- (26) FULLTIME EMPLOYEE is a person who is employed at the dry cleaning facility and averages at least thirty (30) hours per week over any consecutive ninety (90) day period.
- (27) MAJOR SOURCE is any dry cleaning facility that purchases 2,100 gallons of perchloroethylene or more over a 12 month period, at any point in time.
- (28) MATERIAL is any wearing apparel, draperies, linens, fabrics, textiles, rugs, leather, and other goods that are being dry cleaned.
- (29) MUCK COOKER is a heating device used to volatilize and recover perchloroethylene from liquid and solid waste.
- (30) NEW FACILITY is any facility where the most recent dry cleaning machine was installed or modified on or after December 9, 1991. Relocations on or after December 9, 1994 shall be treated as new facilities.
- (31) PERCHLOROETHYLENE [ $\text{CCl}_2\text{CCl}_2$ , Chemical Abstract Service (CAS) Number 127-18-4] is a chlorinated hydrocarbon that is used as a cleaning solvent and is also known as 1,1,2,2-tetrachloroethene, tetrachloroethylene, PCE, and PERC.
- (32) PERCHLOROETHYLENE CONSUMPTION is the total volume of perchloroethylene purchased over the previous twelve (12) months and based upon purchase receipts or other reliable measures.
- (33) PERCHLOROETHYLENE DRY CLEANING is a process for removing soil, grease, paint, and other undesirable substances from materials by washing the materials with perchloroethylene and detergent additives, and then removing the perchloroethylene from the materials by spinning and air drying.
- (34) PERSON is any firm, business, establishment, association, partnership, corporation, government entity, charitable organization, or individual, acting as a principal, agent, employee, or other functioning capacity.
- (35) PLAIN FILTER CARTRIDGE is any replaceable filter cartridge that uses paper, activated carbon, or a combination of the two as the filtering medium. A plain filter cartridge contains no diatomaceous earth or activated clay. Plain filter cartridges include, but are not limited to, standard cartridges, split cartridges, "jumbo" cartridges, and all carbon polishing cartridges.
- (36) PERCEPTIBLE LEAK is the detection of any vapor or liquid perchloroethylene escaping from the dry cleaning system.
- (37) PRIMARY CONTROL SYSTEM is any device or combination of devices that achieves a perchloroethylene concentration of 8,600 ppmv or less in the recirculating air of the drum during the drying cycle, such as a refrigerated condenser or equivalent perchloroethylene recovery system.

- (38) REFRIGERATED CONDENSER is a device that reduces the temperature of the recirculating air in the drum, condenses the perchloroethylene in the air, and reduces the concentration of perchloroethylene in the drum.
- (39) RESPONSIBLE OFFICIAL is any one of the following persons:
- (A) for a corporation, a president, vice president, treasurer, or secretary of the corporation in charge of a principal business function; any other person who performs similar policy or decision making functions for the corporation; or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more dry cleaning facilities;
  - (B) for a partnership, a general partner;
  - (C) for a sole proprietorship, the owner; or
  - (D) for a municipal, state, federal, or other public agency, either a principal executive officer or ranking official.
- (40) SCAQMD means the South Coast Air Quality Management District.
- (41) SECONDARY CONTROL SYSTEM is any device or apparatus that achieves a perchloroethylene concentration of 300 ppmv or less in the recirculating air of the drum during the drying cycle, a level beyond the use of a refrigerated condenser alone. An INTEGRAL secondary control system is designed, offered, purchased, and installed on a specific make and model of the factory original dry cleaning machine and primary control system.
- (42) SELF-SERVICE DRY CLEANING MACHINE is a dry cleaning machine that is loaded, activated, or unloaded by the general public.
- (43) SEPARATOR is a device that allows the condensate or separator water to physically separate into two (2) phases: perchloroethylene and water.
- (44) STILL is a device used to volatilize and recover perchloroethylene from contaminated perchloroethylene.
- (45) TEMPERATURE SENSOR is a thermometer or thermocouple that can measure the specified temperature range with an accuracy of plus or minus two degrees Fahrenheit ( $\pm 2^{\circ}\text{F}$ ) or plus or minus one and one-tenth degrees Centigrade ( $\pm 1.1^{\circ}\text{C}$ ).

- (46) TRAINED OPERATOR is any fulltime employee who successfully completes the initial course, and the refresher course every three (3) years thereafter, of an environmental training program that is offered pursuant to 17 CCR, Section 93110. A responsible official may serve as the trained operator if that responsible official is present at the facility on an average of thirty (30) hours per week over any consecutive ninety (90) day period.
- (47) TRANSFER SYSTEM is a dry cleaning system that involves the physical or manual transfer of materials from a washer to a dryer or reclaimer. Transfer systems include, but are not limited to, wet-to-dry processes, washers, dryers, reclaimers, and drying cabinets.
- (48) US EPA means the United States Environmental Protection Agency.
- (49) VENTED DRY CLEANING MACHINE is a dry cleaning machine that was originally designed and manufactured to vent to the atmosphere during aeration and is absent of primary controls.
- (50) WASHER is any machine used to wash, rinse, and clean materials by saturating with and then removing most of the cleaning solution, such as detergent and perchloroethylene.
- (51) WASTEWATER is perchloroethylene contaminated water produced from the steam press(es), refrigerated condenser(s), distillation unit(s), or from the desorption of a carbon adsorber.
- (52) WASTEWATER ELIMINATION SYSTEM is any device that reduces or eliminates the liquid effluent from a separator.

(d) Dry Cleaning System Requirements

A person who owns or operates a perchloroethylene dry cleaning system shall comply with all of the following applicable system requirements.

- (1) Prohibition.
  - (A) On or after December 9, 1994, a person shall not install a transfer system, a vented dry cleaning machine, or a self-service dry cleaning machine.
  - (B) 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.
  - (C) On or after December 9, 1998, a person shall not operate any transfer system, any vented dry cleaning machine, or any self-service dry cleaning machine.

- (2) Existing Equipment. All dry cleaning equipment and floor pickups shall vent through a control system. The control system shall meet one the following requirements.
- (A) The concentration of perchloroethylene at the outlet of a carbon adsorber shall not exceed one hundred (100) ppm as measured over a period of one (1) minute before dilution. OR
  - (B) The air temperature at the outlet of a refrigerated condenser shall reach 45°F or less at the end of the cool down. A temperature gauge with a minimum range from 0°F to 150°F must be installed on the condenser outlet duct. OR
  - (C) The demonstrated control efficiency for any other control device must be ninety percent by weight (90%wt) emission reduction or greater, prior to the discharge to the atmosphere measured over a complete drying cycle, based upon the amount of perchloroethylene entering the control device.
- (3) Replacement of Existing Equipment. Before December 9, 1998, closed loop, dry-to-dry machines replacing existing equipment shall be equipped with at least integral primary controls as specified in paragraph (e)(1) and fugitive controls as specified in paragraph (e)(3). On or after December 9, 1998, factory original, closed loop, dry-to-dry machines replacing existing equipment shall be equipped with integral primary, secondary, and fugitive controls as specified in subdivision (e).
- (4) Conversion of Vented Machines. If the vented machines are modified to converted machines, the primary controls shall meet the applicable requirements below and those specified in paragraph (e)(1), and fugitive control requirements specified in paragraph (e)(3). The requirement to install fugitive controls may be waived upon approval by the Executive Officer or designee provided that fugitive controls are installed to the extent possible and that complete controls are not physically possible.
- (A) Primary Controls.
    - (i) Existing Converted Machines with Refrigerated Condensers. Converted machines installed before December 9, 1994 shall maintain an outlet air temperature of 45°F (7.2°C) or less for at least three (3) minutes and within ten (10) minutes of the start of cool down. The outlet air temperature shall be measured downstream of the condenser and any bypasses.
    - (ii) New Converted Machines with Refrigerated Condensers. Converted machines installed on or after December 9, 1994 shall include the following modifications.
      - (I) Condensing Coils. The water cooled condensing coils of existing converted equipment shall be replaced with refrigerant cooled condensing coils; and

- (II) Condenser Compressor. The compressor of the refrigerant cooled condenser shall have a minimum rating (horsepower) that is equal to or greater than the maximum capacity of the machine (pounds of clothing) divided by twelve (12).
    - (iii) Converted Machines with Equivalent Perchloroethylene Recovery Systems. For converted machines with perchloroethylene recovery systems that are deemed equivalent as specified in subsection (e)(4), the total drying time for a converted machine shall not be extended by more than five (5) minutes over the drying time of the original vented machine.
  - (B) Process Vents. All process vents on the machine, originally designed to vent directly to the atmosphere during the washing, extraction, or drying cycles, shall be sealed.
  - (C) Perceptible Leaks. The converted machine shall have no perceptible leaks as specified paragraph (f)(3). Any seal or gasket determined to have a perceptible leak shall be immediately replaced, according to the time schedule contained in paragraph (f)(7).
- (5) New Equipment. On or after December 9, 1994, major sources installing dry cleaning machines that do not replace existing equipment shall install factory original, closed loop, dry-to-dry machines equipped with integral primary, secondary, and fugitive controls as specified in subdivision (e). Before June 9, 1996, area sources installing dry cleaning machines that do not replace existing equipment shall install closed loop, dry-to-dry machines equipped with at least integral primary controls as specified in paragraph (e)(1) and fugitive controls as specified in paragraph (e)(3). On or after June 9, 1996, area sources installing dry cleaning machines not replacing existing equipment shall install factory original, closed loop, dry-to-dry machines equipped with integral primary, secondary, and fugitive controls as specified in subdivision (e).
- (6) Wastewater Elimination System. On or after June 9, 1996, a person shall not operate a wastewater elimination system without a separator, located and operating immediately before the wastewater elimination system. A person shall not bypass the separator by loading or adding wastewater directly to the wastewater elimination system. A person shall not load or add still bottoms or residue to the separator or the wastewater elimination system.
- (7) Dip Tank Cover. On or after June 9, 1996, a person shall not operate the dip tank without a cover that prevents the escape of perchloroethylene vapors from the tank.

(8) Certified Equipment List. The SCAQMD may issue a list of certified equipment that will indicate which machines have been demonstrated to meet the system requirements and specifications provided in subdivisions (d), (e), and (g). The manufacturer or distributor shall submit a permit application and complete a full permit and technical evaluation before being added to the list. The manufacturer or distributor successfully completing the Certified Equipment Permit Program shall be granted a Certified Equipment Permit. The list will include certification for the following devices:

- (A) dry cleaning system, which includes:
  - (i) factory original closed loop dry-to-dry machine;
  - (ii) primary and secondary control systems; and
  - (iii) monitoring devices;
- (B) a combined separator and wastewater elimination system; or
- (C) a dip tank.

(e) Control System Specifications

A person who owns or operates a perchloroethylene dry cleaning facility shall comply with all of the following applicable control system specifications.

- (1) Primary Control System. A primary control system shall:
  - (A) operate during the drying cycle to reduce the perchloroethylene concentration in the recirculating air stream to 8,600 ppmv;
  - (B) not vent to the atmosphere or workroom;
  - (C) 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
  - (D) consist of one of the following systems:
    - (i) Refrigerated Condenser. The air temperature at the outlet of the refrigerated condenser shall not exceed 45°F (7.2°C) at the end of the cool down period. If the refrigerated condenser is an add-on or retrofit, it shall also be operated with a diverter valve; or
    - (ii) Other Control Device. Any other control device must meet or exceed all of the following criteria:
      - (I) result in a perchloroethylene drum concentration of 8,600 ppmv or less at the end of the drying cycle, and before the fugitive control system is activated;

- (II) have 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; indicates if the concentration is above or below 8,600 ppmv; has a display that is easily visible to the operator.
  - (III) preclude the direct contact of any form of water to perchloroethylene in order to operate, maintain, or regenerate the perchloroethylene control device.
- (2) Secondary Control System. A secondary control system shall:
  - (A) operate with the primary control system so that the combined system reduces the perchloroethylene concentration in the recirculating air stream to 300 ppmv;
  - (B) not vent to the atmosphere or workroom;
  - (C) not require the addition of any form of water to the primary control system that results in the physical contact between water and perchloroethylene;
  - (D) have a holding capacity of two hundred percent (200%) or greater of the maximum amount of vapor perchloroethylene expected in the drum prior to the activation of the secondary control system; and
  - (E) for an external add-on, the system shall be sized to include the maximum volume of recirculating air in the dry cleaning machine and all associated piping.
- (3) Fugitive Control System. A fugitive control system shall:
  - (A) operate after the drying cycle is completed;
  - (B) be activated whenever the main door, button trap, lint trap, or still is open; and
  - (C) vent through an air pollution control device approved by the Executive Officer or designee.
- (4) Equivalent Perchloroethylene Recovery Systems. The Executive Officer's designee shall deem "equivalent", for the purposes of this rule, any control technology determined to be equivalent by US EPA pursuant to 40 CFR, Section 63.325 and by CARB pursuant to 17 CCR, Section 93109(h). Such equivalent control technology may be used in lieu of the required control elements described in paragraphs (e)(1) or (e)(2).

- (5) Wastewater Separator or Elimination System.
  - (A) The perchloroethylene concentration of the liquid effluent of any wastewater separator or elimination system shall not exceed 150 ppm.
  - (B) The perchloroethylene concentration of the vapor emissions of any wastewater elimination system shall not exceed 25 ppmv.
  - (C) The wastewater separator shall be constructed so that no vapor emissions of perchloroethylene are emitted to the atmosphere.

(f) Operating Requirements

A person who owns or operates a perchloroethylene dry cleaning facility shall comply with all of the following applicable operating requirements in accordance with the compliance schedule in section (j).

- (1) Trained Operator. Each facility shall employ at least one trained operator at all times and be responsible for compliance by the trained operator of this rule's requirements.
  - (A) A person shall not serve as the trained operator for two (2) or more facilities.
  - (B) In the event that a facility loses all or its only trained operator, the facility shall:
    - (i) enter the name and the date of loss of the last or sole trained operator into the Facility Record of Trained Operator(s) and Employee(s) within one (1) day of the loss;
    - (ii) designate an interim trained operator to fulfill all of the requirements specified in this rule within one (1) month of the loss; and
    - (iii) obtain certification for a replacement trained operator according to the schedule specified in subparagraph (j)(1)(E).
- (2) Trained Employees. The trained operator shall train all employees operating the dry cleaning or corresponding control devices in the proper operation and maintenance of the dry cleaning and corresponding control devices in accordance with the equipment manufacturer's specifications and recommendations.
- (3) Perceptible Leak Detection.
  - (A) Before June 9, 1996, the detection of a perceptible leak of perchloroethylene shall be based on the following method:
    - (i) the odor of perchloroethylene;

- (ii) the sight of any system drip in excess of one drop per three minutes or any pool of liquid perchloroethylene; or
  - (iii) the feel of perchloroethylene emissions by passing the fingers over the surface of the machine.
- (B) On or after June 9, 1996, the detection of a perceptible leak of perchloroethylene shall be based on the measurement of vapor perchloroethylene concentrations in excess of twenty five (25) ppmv with one of the following devices:
  - (i) a portable halogenated hydrocarbon detector, reading 50 ppmv if calibrated to methane; or
  - (ii) a gas analyzer equipped with a rapid audible or visual signal.
- (4) Good Operating Practices. A person who operates any perchloroethylene dry cleaning facility shall comply with the following requirements:
  - (A) all materials being cleaned are dry before removal from the machine;
  - (B) there are no perceptible leaks of perchloroethylene;
  - (C) all doors, traps, and other access points that may emit perchloroethylene remain closed at all times except for proper system operation, maintenance, or repair;
  - (D) button and lint traps are cleaned at the beginning of each working day and before the system is started, and the lint placed in a tightly sealed container;
  - (E) the backwash from the filter(s) is treated in a still or muck cooker where:
    - (i) the still or muck cooker does not exceed seventy-five percent (75%) of its capacity;
    - (ii) the still or muck cooker is allowed to cool to 100°F (38°C) or less before emptying or cleaning;
    - (iii) the backwash from all diatomaceous earth filters is treated so that the residue contains no more than twenty-five percent by weight (25%wt) perchloroethylene; and
    - (iv) the backwash from filters other than diatomaceous earth is treated so that the residue contains no more than sixty percent by weight (60%wt) perchloroethylene;
  - (F) filter cartridges are handled in one of the following manners to reduce the volume of perchloroethylene contained in the filter:
    - (i) plain filter cartridges are drained in the filter housing, before disposal, for at least twenty-four (24) hours;

- (ii) adsorptive filter cartridges are drained in the filter housing, before disposal, for at least forty-eight (48) hours;
  - (iii) filters are dried in an active dryer equipped with the approved perchloroethylene control system, with no vent to the atmosphere or workroom, for at least twelve (12) continuous hours; or
  - (iv) filters are dried, stripped, sparged, or otherwise treated within the sealed filter housing or in a component of the dry cleaning system specifically designed for this purpose in accordance with the manufacturer's specifications;
- (G) all waste containing perchloroethylene is stored in sealed containers that are free of perceptible leaks and disposed in accordance with all applicable local, state, and federal regulations; and
- (H) untreated wastewater is not air or fan dried in open containers, boilers, or cooling towers.
- (5) Daily Visual Inspection. The trained employee shall visually inspect the dry cleaning facility daily for perceptible leaks before the system is started. At a minimum, an inspection shall include the following components:
- (A) hose connections, unions, couplings, and valves;
  - (B) machine door gaskets and seatings;
  - (C) filter head gaskets and seatings;
  - (D) pumps;
  - (E) base tanks and storage containers;
  - (F) wastewater evaporators or separators;
  - (G) filter sludge recovery units;
  - (H) distillation units;
  - (I) diverter valves;
  - (J) lint baskets; and
  - (K) cartridge filters.
- (6) Weekly Checklist Inspection. The trained operator shall inspect the dry cleaning facility weekly for perceptible leaks while the dry cleaning system is operating and according to the operation and maintenance checklist provided by the Executive Officer's designee.

- (A) Operation and Maintenance Checklist. At a minimum, the checklist shall verify the proper operation and maintenance (i.e., no perceptible leaks) of the following components.
- (i) hose connections, unions, couplings, and valves;
  - (ii) machine door gaskets and seatings;
  - (iii) filter head gaskets and seatings;
  - (iv) pumps;
  - (v) base tanks and storage containers;
  - (vi) wastewater evaporators or separators;
  - (vii) filter sludge recovery units;
  - (viii) distillation units;
  - (ix) diverter valves;
  - (x) lint baskets; and
  - (xi) filter cartridges.
- (7) Repairs. The trained operator shall immediately repair or order repair service or parts for dry cleaning or corresponding control system with any perceptible leaks and according to the following schedules.
- (A) Immediate Repair. All perceptible leaks from the dry cleaning or control systems shall be repaired within twenty-four (24) hours or repair service(s) or part(s) shall be ordered within two (2) working days of detecting the leak.
  - (B) Leak Marking. If repair service or parts are ordered, the leaking component(s) shall be clearly marked or tagged with the date that the leak is detected.
  - (C) Immediate Installation. The ordered repair parts shall be installed within five (5) working days of receipt.
  - (D) Repair Duration. The cumulative duration of the repair service(s) and part(s) order shall not exceed fifteen (15) working days.
  - (E) Recordkeeping. The date that a perceptible leak is detected and the nature and date of their repair shall be noted in the Facility Log of System Maintenance and Repair.
- (8) Reporting and Recordkeeping. The trained operator shall prepare and maintain all reporting and recordkeeping requirements as specified in subdivisions (h) and (i).
- (9) Water Repelling and Dip Tank Operations. On or after June 9, 1996, the trained employee performing water repelling or dip tank operations shall comply with the following requirements.

- (A) Water Repelling. All materials to be treated with perchloroethylene water repelling solutions shall be treated in a factory original or converted closed loop machine, or a covered dip tank.
  - (B) The dip tank shall remain covered at all times, except when materials are placed in or removed from the dip tank or while the basket is moved into position.
  - (C) After immersion, the materials shall be drained within the covered dip tank until dripping ceases.
  - (D) All materials removed from the dip tank shall be immediately, within one (1) minute, placed and treated in a closed loop machine for drying and shall not be removed from the machine until the materials are dry.
- (10) Transfer or Vented Machine with a Carbon Adsorber. A dry cleaning facility with a transfer or vented machine and operating a carbon adsorber as specified in paragraph (d)(2), which functions during the during cycle, shall meet the following requirements.
- (A) Desorption shall be performed each time all dry cleaning equipment exhausted to the device has cleaned a total of three (3) pounds of materials for each pound of activated carbon. Desorption shall be performed with the minimum steam pressure and air flow capacity recommended by the manufacturer.
  - (B) Once desorption is complete, the carbon bed shall be fully dried according to the manufacturer's instructions.
  - (C) No vented perchloroethylene vapors shall bypass the carbon adsorber to the atmosphere.

**(g) Monitoring Requirements**

A person who owns or operates a perchloroethylene dry cleaning facility shall comply with all of the following applicable monitoring requirements.

- (1) Weekly Testing of Integral Control Systems.
  - (A) Carbon Adsorber. The trained operator shall monitor the carbon adsorber weekly.

- (i) **Outlet Measurement.** If used to monitor the outlet of the carbon adsorber, the colorimetric detector tube shall be designed to measure a perchloroethylene concentration of 100 ppmv in air to an accuracy of  $\pm 10$  ppmv and operated according to the manufacturer's instructions. The vent outlet shall be easily accessible and at least eight (8) stack or duct diameters downstream and two (2) stack or duct diameters upstream from any flow disturbances such as a bend, expansion, contraction, inlet, or outlet.
    - (ii) **Drum Measurement.** If used to monitor the drum, the colorimetric detector tube shall be designed to measure a perchloroethylene concentration of 300 ppmv in air to an accuracy of  $\pm 30$  ppmv and operated according to the manufacturer's instructions.
  - (B) **Refrigerated Condenser.** The trained operator shall monitor the refrigerated condenser weekly.
    - (i) **Temperature Sensors.** Temperature sensors shall be installed on the outlet duct of the refrigerated condenser, measure the vapor phase, and be easily visible to the trained operator or trained employee. The outlet sensor shall be downstream from any bypass.
    - (ii) **Manufacturer's Instructions.** The temperature sensor shall be operated according to the manufacturer's instructions.
    - (iii) **Sensor Range.** The temperature sensor shall have a minimum range of 0°F (-18°C) to 150°F (66°C) with an accuracy of  $\pm 2$ °F ( $\pm 1.1$ °C).
  - (C) **Equivalent Perchloroethylene Recovery Systems.** Dry cleaning machines that are equipped with an equivalent perchloroethylene recovery system shall have a monitoring device that measures the perchloroethylene concentration, or a demonstrated surrogate parameter, in the back of the drum above the materials being processed. This monitoring device shall indicate if the perchloroethylene concentration is greater or less than 8,600 ppmv at the end of the drying cycle and before the machine door is opened and any fugitive control system is activated. The display portion of this monitoring device shall be easily visible to the operator.
- (2) **Perchloroethylene Detector.** A dry cleaning machine having a perchloroethylene detector shall be exempt from the weekly testing requirements of integral control systems as specified in paragraph (g)(1).
- (A) The display portion of the perchloroethylene detector shall be easily visible to the operator.
  - (B) The perchloroethylene detector shall operate whenever the dry cleaning machine is in use.

- (C) The perchloroethylene detector shall be located in the back of the drum and above the materials being cleaned.
- (D) The perchloroethylene detector for a machine equipped with a primary, but not a secondary, control system shall indicate if the perchloroethylene concentration is greater or less than 8,600 ppmv at the end of the drying cycle and before any fugitive control system is activated.
- (E) The perchloroethylene detector for a machine equipped with primary and secondary control systems shall indicate if the perchloroethylene concentration is greater or less than 300 ppmv at the end of the drying cycle and before any fugitive control system is activated.
- (F) The perchloroethylene detector shall have an auditory and visual signal. The visual signal shall not be capable of being manually disabled.
- (G) The dry cleaning machine shall have a sampling port that provides access to the same air measured by the perchloroethylene detector.

#### (h) Reporting Requirements

A person who owns or operates a perchloroethylene dry cleaning facility shall comply with all of the applicable reporting requirements set forth below, according to the schedule specified in paragraphs (j)(2) and (j)(3). The facility shall maintain these reports for at least five (5) years or until the next inspection, whichever period is longer. The responsible official or trained employee shall maintain, and immediately make available upon request, the following reports at the facility at all times for the first two (2) years. These reports may be kept anywhere else for the remaining three (3) years but must be delivered to the SCAQMD within two (2) working days of request.

- (1) Initial Report. At a minimum, the initial report shall include the following elements:
  - (A) a signature by a responsible official certifying that the initial report is accurate and true;
  - (B) the name and mailing address of the responsible official;
  - (C) the business address of the dry cleaning facility;
  - (D) documentation or estimation of perchloroethylene purchased over the previous twelve (12) months;
  - (E) a description of each dry cleaning machine currently installed and used at the facility, including the type and capacity;
  - (F) the date that each dry cleaning machine was installed; and

- (G) a description of each air pollution control device currently installed and used at the facility.
- (2) Compliance Report. At a minimum, the compliance report shall include the following elements:
- (A) a signature by a responsible official certifying that the compliance report is accurate and true;
  - (B) the name and mailing address of the responsible official;
  - (C) the business address of the dry cleaning facility;
  - (D) documentation of perchloroethylene purchased over the previous twelve (12) months;
  - (E) a description of each compliant dry cleaning and air pollution control device currently installed and used at the facility or of future actions being undertaken to comply with this rule;
  - (F) the date that each compliant dry cleaning and air pollution control device was or will be installed; and
  - (G) a statement recognizing the requirements and certifying implementation of:
    - (i) control system;
    - (ii) good operating practices; and
    - (iii) recordkeeping.
- (3) Annual Report. At a minimum, the annual report shall include the following elements:
- (A) a signature by a responsible official certifying that the annual report is accurate and true;
  - (B) a copy of the record of completion for each trained operator for the facility;
  - (C) the total pounds of materials cleaned and total gallons of perchloroethylene used over the previous twelve (12) months;
  - (D) the average facility mileage, based on the following formulae;
- $$\text{Average Facility Mileage} = \frac{\text{Materials Cleaned (pounds)}}{\text{Perchloroethylene Used (gallons)}}$$

- (E) a perchloroethylene balance sheet presented in terms of amounts of perchloroethylene in initial inventory; additionally purchased; disposed of; and in ending inventory over the previous twelve (12) months, and perchloroethylene emitted to the atmosphere, based on the following formula:

$$\begin{aligned} \text{Annual Emission (pounds)} &= \text{Initial Inventory (pounds)} \\ &+ \text{Additional Purchases (pounds)} \\ &- \text{Annual Disposal (pounds)} \\ &- \text{Ending Inventory (pounds)} \end{aligned}$$

- (F) a system statement itemizing and describing the perchloroethylene dry cleaning and corresponding control system currently installed at the facility;
  - (G) a pollution prevention statement itemizing and describing all good operating practices, inspections, reporting, recordkeeping, and training activities currently in practice at the facility;
  - (H) a description and schedule for any planned changes to the system or activities at the facility;
  - (I) a summary of the inspection and repair logs; and
  - (J) a summary of the training record.
- (4) Reporting Relief. The SCAQMD may elect to reduce or eliminate portions of these reporting requirements should the information being required be available or maintained through other means or be redundant and unchanging.

(i) Recordkeeping Requirements

A person who owns or operates a perchloroethylene dry cleaning facility shall comply with all of the applicable recordkeeping requirements set forth below, according to the schedule specified in paragraphs (j)(2) and (j)(3). The facility shall maintain these reports for at least five (5) years or until the next SCAQMD inspection, whichever period is longer. The responsible official or employee shall maintain, and immediately make available upon request, the following records at the facility at all times for the first two (2) years. These reports may be kept anywhere else for the remaining three (3) years but must be delivered to the SCAQMD within two (2) working days of request.

- (1) Daily Machine Log. For each dry cleaning machine, the facility shall maintain a daily log showing the date and the pounds of materials cleaned per load.
- (2) Daily Facility Log. The facility shall maintain a daily log showing the date and the name of the person performing the following activities.

- (A) Perchloroethylene Purchased, Delivered, Used, and Disposed. The facility shall maintain copies of purchase, delivery, and disposal receipts in the log.
  - (B) Daily Visual Inspection. The trained employee performing the inspection shall record the time of the inspection and make a statement in the log regarding the presence or absence of any perceptible leaks.
- (3) Weekly Facility Log. The facility shall maintain a weekly log showing the date and the name of the trained operator performing the following activities.
- (A) Carbon Adsorber Efficiency. The results of the carbon adsorber outlet or drum measurement during dry cleaning machine operation shall be recorded in the log.
  - (B) Refrigerated Condenser Efficiency. The temperature difference across the refrigerated condenser during dry cleaning machine operation shall be recorded in the log.
  - (C) Weekly Checklist Inspection. The facility shall maintain copies of the completed checklists in the log.
- (4) Monthly Facility Log of Annual Perchloroethylene Purchased. On the first operating day of every month, the trained operator or employee shall sum up the volume of perchloroethylene purchased over the previous twelve (12) months.
- (5) Facility Log of System Maintenance And Repair. The log shall contain the date and a description of the required repair(s) and action being taken to complete the repair(s), and copies of dated service or part(s) order(s).
- (6) Operation and Maintenance Manuals. The facility shall keep the operation and maintenance manuals of the perchloroethylene dry cleaning and corresponding control system for the life of the machine or system.
- (7) Facility Record of Trained Operator(s) and Employee(s).
- (A) The facility shall maintain the original record of successful completion for each trained operator during the employment of that person. Successful completion of an environmental training program shall be evidenced by a dated and instructor signed record of completion.
  - (B) The facility shall keep a copy of the record of completion for each trained operator and for two (2) additional years after termination of employment at the facility.
  - (C) The facility shall maintain a record of the date and nature of the training of each employee during and for two (2) additional years after the termination of employment at the facility.

- (8) Recordkeeping Relief. The SCAQMD may elect to reduce or eliminate portions of these recordkeeping requirements should the information being required be available or maintained through other means or be redundant and unchanging.

(j) Compliance Schedule

A person who owns or operates a perchloroethylene dry cleaning facility shall comply with all of the following applicable provisions of the compliance schedule:

- (1) All Dry Cleaning Facilities.
- (A) Immediate Requirements. On or after December 9, 1994, all facilities are subject to the following provisions:
- (i) good operating practices, according to paragraph (f)(4);
  - (ii) daily visual inspections, according to paragraph (f)(5);
  - (iii) weekly checklist inspections, according to paragraph (f)(6);
  - (iv) immediate repairs, according to paragraph (f)(7);
  - (v) daily log of perchloroethylene purchased, used, and disposed, according to subparagraph (i)(2)(A); and
  - (vi) weekly facility log, according to paragraph (i)(3).
- (B) Monthly Log of Annual Perchloroethylene Purchased. Before December 9, 1995, the responsible official or trained employee shall begin, and maintain on the first day of each subsequent month, a monthly log of the perchloroethylene purchased over the previous twelve (12) months.
- (C) Trained Operator Refresher Course. The trained operator shall successfully complete the refresher course of an environmental training program offered pursuant to 17 CCR, Section 93110 once every three (3) years after initial certification.
- (D) Interim Trained Operator. The term of an interim trained operator shall not exceed four (4) months. The Executive Officer's designee may extend the term of the interim trained operator by one (1) month after the next available initial course.
- (E) Replacement Trained Operator. The responsible official shall obtain certification of a replacement trained operator within three (3) months of the loss of the last or sole trained operator. The Executive Officer's designee may extend the time schedule for certification of the replacement trained operator by one (1) month after the next available initial course.
- (F) Written Training Extension Request. A responsible official may request an extension to comply with the time limits specified in subparagraphs (j)(1)(C), (j)(1)(D), (j)(1)(E), (j)(2)(D), (j)(2)(E), (j)(3)(C), and (j)(3)(D) in writing thirty (30) calendar days before the given time period expires.

- (2) Existing Facilities.
- (A) Initial Report. Before February 9, 1995, the responsible official or trained operator shall prepare and submit to the SCAQMD a completed initial report for the existing facility, pursuant to paragraph (h)(1).
  - (B) Compliance Report. Before December 9, 1995, the responsible official or trained operator shall prepare and submit to the SCAQMD a completed compliance report for the existing facility, pursuant to paragraph (h)(2).
  - (C) Annual Report. Within one (1) year after the compliance report, the responsible official or trained operator shall prepare and submit to the SCAQMD an annual report for the existing facility, pursuant to paragraph (h)(3), and update and submit the annual report every year thereafter.
  - (D) Trained Operator. On or after June 9, 1996, each existing facility shall have at least one (1) trained operator. The Executive Officer's designee may extend the time schedule for certification of the trained operator by six (6) months after the next available initial course.
  - (E) Trained Employees. On or after December 9, 1996, the trained operator shall train each employee of the existing facility. The Executive Officer's designee may extend the time schedule for employee training by six (6) months after the trained operator has successfully completed the initial course.
- (3) New Facilities.
- (A) Compliance Report. Within sixty (60) calendar days of the date of issuance of the Permit to Operate, the responsible official or trained operator shall prepare and submit to the SCAQMD a completed compliance report for the new facility, pursuant to paragraph (h)(2).
  - (B) Annual Report. Within one (1) year after the compliance report, the responsible official or trained operator shall prepare and submit to the SCAQMD an annual report for the existing facility, pursuant to paragraph (h)(3), and update and submit the annual report every year thereafter.
  - (C) Trained Operator. Within three (3) months of the date of issuance of the Permit to Operate, each new facility shall have at least one (1) trained operator. The Executive Officer's designee may extend the time schedule for certification of the trained operator by one (1) month after the next available initial course.

- (D) Trained Employees. Within nine (9) months of the date of issuance of the Permit to Operate, the trained operator shall train each employee of the new facility. The Executive Officer's designee may extend the time schedule for employee training by six (6) months after the trained operator has successfully completed the initial course.

(k) Test Methods

- (1) The control efficiency of the control system shall be determined according to US EPA Test Method 18.
- (2) The verification of a perceptible leak of perchloroethylene shall be determined according to CARB Test Method 21, measured at the surface of the leaking component.

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