This Policy and Procedure document provides guidance on the procedures to be used for inspecting a perchloroethylene (perc) dry cleaning facility. Refer to ARB’s Compliance Assistance Program document for extensive technical information concerning dry cleaner inspections.

RULE 320

Rule 320 requires dry cleaning facilities using petroleum-based solvents (i.e., Stoddard) to employ certain operational and emission control practices. Facilities using perc are not subject to this rule.

PROCESS DESCRIPTION:

Dry cleaning is the cleaning of fabric materials using an organic solvent rather than water. The material to be cleaned is first immersed in solvent and agitated. Most of the solvent is extracted from the fabric by centrifugal force and the damp material is then dried by a forced air tumbling method. After the heated-drying phase, the system operates in a "cool-down" mode. During cool-down, any perc that remains entrained in the air is chilled and condensed into liquid perc again.

There are two dry cleaning processes: (1) The "transfer" process uses different machines for the three stage cleaning, i.e. washing, extraction and drying. Some facilities which utilize the transfer process will have three separate machines,(a washer, an extractor and a dryer). Others will have two machines (a washer/extractor and a dryer). (2) The "dry-to-dry" process involves one machine which performs the three stage cleaning in a single drum or "wheel."

A "dry-to-dry" machine may either be "vented" or "closed-loop". A vented machine injects fresh air into the drum during the last step of the drying cycle and exhausts to the atmosphere, either directly or through a control device. A closed-loop machine recirculates percladen vapor through a primary control system with no exhaust to the atmosphere during the drying cycle.

Used cleaning solvent is first filtered and then distilled to remove oils and water before it is returned to the supply tank for reuse. There are two types of solvent filters and two corresponding types of distillation processes.
A. Filter Media Types

The most common filtering medium is a battery of cartridge filters. Cartridge filters may use paper, activated carbon, or both as the filter medium. Associated with the cartridge filter system is a solvent still equipped with a water separator.

"Adsortive" cartridge filters are older, less common filtering media. These filters are replaceable cartridges that contain diatomaceous earth or activated clay. Associated with a diatomaceous earth filtering system is distillation equipment referred to as a "Muck Cooker."

Another filtering system is "disc filtering". Disc filters are made of dacron mesh and come in two sizes. The 60 micron disc filter contains diatomaceous earth and is referred to as a "powder filter". The 30 micron disc filter does not contain any diatomaceous earth and it is referred to as either a "non-powder filter" or an "ecological filter". The normal procedure for cleaning these filters is to drain them half-way (which can be viewed through the sight glass) and then they are spun by the motor. The resultant turbulence washes off the discs.

B. Distillation and Waste

Waste water from the water separators, steam presses, still bottoms and from the carbon desorption process must be handled as hazardous waste if it contains over one percent solvent. If the waste water has a perceptible perch odor, then it is quite possible that it contains over one percent perch.

"Waste Water Evaporators" may be used to process waste water and do not require an APCD permit. Inspectors should make note of any in use in the inspection report so that the evaporator unit will be added to the permit equipment list during the next triennial reevaluation.

Waste oil and "muck" produced as waste products from the distillation process are collected and stored in sealed waste containers.

C. Evaporative Emission Controls

Evaporative solvent emissions from the heated and cool-down phases of the drying cycle are controlled by either condensation (refrigerated condenser or water-cooling tower) or carbon adsorption. Condensed solvent vapors are returned to the supply tank for reuse. A carbon adsorption unit is also known as a "sniffer". Saturated activated carbon is either replaced and the saturated carbon is removed for regeneration at another location, or regenerated with steam
(desorbed) on site. If a facility uses a carbon adsorption unit, it must desorb it at a minimum frequency of 3 pounds of material cleaned for each pound of activated carbon. During the desorption cycle, the water must be separated from the solvent before the solvent is returned to the supply tank. This solvent/water separation process is another potential source of hazardous waste and evaporative emissions.

SUMMARY OF TIME-LINE REQUIREMENTS IN CARB's PERC DRY CLEANING ATCM:

On October 1, 1994, the ATCM became effective in Santa Barbara County. In the ATCM, compliance dates and facility requirements are explained in detail. The following is a summary:

1. Prior to November 29, 1994

Recordkeeping:
See Pages 6-10 of ATCM.

(1) Purchase/delivery receipts for perc.
(2) Each day, pounds of clothes per load.
(3) Weekly leak inspections and checklist.
(4) Service and repair log.
(5) Desorption log.
(6) Operation and maintenance log.

NOTE: If a leak is detected during the weekly leak inspection, it must be repaired immediately or be tagged and recorded on the "Service and Repair Log". As indicated on the service and repair log, liquid leaks or vapor leaks shall be repaired in 24 hours of detection. If the leaks are not repaired at the time of detection, the component shall be tagged. Parts shall be ordered within two working days of the detection of the leak. 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 (variance) from the Hearing Board. The inspector shall explain the variance process to the owner/operator when a leak is found, so that any unexpected delays in repair can be addressed with knowledge of the variance process.

Operation/Maintenance:
See Pages 7-10 of ATCM.

(1) For equipment installed after October 1, 1994, manufacturer's operating manual for all components
of the dry cleaning system shall be kept at the facility.

(2) Facilities must begin daily, weekly, monthly, semi-annual and annual inspections of the equipment. (See the Operations & Maintenance Checklist.)

Initial Notification:
See Page 6 of ATCM.

(1) Facility questionnaire to be filled out and returned to the APCD.

2. Prior to March 1, 1995 (and each year after)

Annual Reporting:
See Page 7 of ATCM.

(1) By March 1 of each year, the facility shall send in the Annual Report Form to the APCD for the previous calendar year. (By March 1, 1997, shall include a record of completion of environmental training for each trained operator.)

3. Prior to October 1, 1995

Notification of Required Equipment:
See Page 12 of ATCM.

(1) Facilities that have transfer machines or vented dry-to-dry machines shall notify the APCD of their choice between "Option 1" (a "converted closed-loop" machine with a primary control system) or "Option 2" (a new closed-loop machine with a primary control system). (See Table 1/Page 20 of the ATCM.)

4. Prior to April 1, 1996

Equipment:
See Pages 11-15 of ATCM.

(1) Facilities existing prior to October 1, 1994, that selected Option 1 shall not operate transfer or vented machines after April 1, 1996.

(2) New facilities (built after 10-1-94) shall operate closed-loop machines with secondary controls by April 1, 1996.

(3) Non-compliance with the applicable requirements of Option 1 by April 1, 1996, will automatically
require existing facilities to comply with Option 2 by October 1, 1998.

**Leak Check And Repair Requirements:**
See Pages 9-10 of ATCM.

(1) Facilities must routinely check for vapor leaks by using either "Halogenated-Hydrocarbon Detectors", "Portable Gas Analyzers" or alternate methods approved by the District.

**Environmental Training Requirements:**
See Page 11 of ATCM.

(1) Each facility shall have at least one full-time employee certified as a trained operator.
(2) One person cannot serve as the trained operator for two or more facilities simultaneously.
(3) Successful completion of a refresher course is required at least once every three years.
(4) If the only trained operator leaves the employ of the facility, the facility shall notify the APCD in writing within 30 days of the departure of the trained employee.
(5) Certification for a replacement trained operator must be obtained within three months.

**Water-Repelling and Dip Tank Operations:**
See Pages 17-18 of ATCM.

(1) All materials shall be treated in a closed-loop machine, converted machine, or a dip tank.
(2) Dip tank operations shall be fitted with a vapor tight cover.
(3) Materials shall be drained within the covered dip tank until the dripping ceases.
(4) All materials removed from the dip tank shall be immediately placed into a closed-loop machine or a converted machine for drying and removed from the machine until the materials are dry.

5. **Prior to October 1, 1998**

**Equipment:**
See Table 1 of ATCM/Page 20/Column 1-Option 2/Column 7-48 Months.

(1) Those that selected Option 2 shall comply with the applicable equipment requirements prior to October 1, 1998.
EMISSIONS

Potential emission points include:

1. Solvent storage.

2. Solvent transfer (perc is typically poured through the button trap or the drum/loading door).

3. Solvent evaporation during drying and cool-down processes. Vented machines may:
   a) duct solvent vapors to atmosphere;
   b) send vapors to an activated carbon bed (a primary or secondary control device). Saturated beds may send vapors to atmosphere virtually uncontrolled.
   c) send vapors through a refrigerated condenser. If the condenser is operating above 45°F, vapors may be emitted when the loading door is opened.

4. Fugitive solvent emissions associated with leaks from hose connections, unions, couplings, valves, machine door gaskets and seatings, the filter head gasket and seating, pumps, base tanks and storage containers, solvent water separators, distillation unit, lint trap, button trap, filter canisters, and vent ducting.

5. Fugitive emissions associated with the storage, transfer and disposal of solvent-containing wastes (stills, muck cookers, solvent water separators, and waste water evaporators).

6. Emissions associated with the transfer of wet material from a washing machine to a separate drying machine.

INSPECTION PROCEDURE:

The inspector should use the following procedure when inspecting a dry cleaning facility:

1. Review ATCM

2. File Review
   a. Review past inspection reports and enforcement actions.
   b. Review all Permit Conditions.
   c. Verify annual report and environmental training certificate has been received.
   d. Review process description to determine if the provisions of Rule 320 apply to the facility to be inspected.
   e. Verify receipt of "Initial Notification" by November 29, 1994.
   f. Determine if the system is closed-loop.
   g. If not closed-loop, verify receipt of notification form by October 1, 1995 that indicates a choice of Option 1 or Option 2.

3. Checklist Preparation
   a. Use the Dry Cleaner Inspection Checklist (APCD Form ENF-25).
b. Complete the top portion of page one of the checklist and using the description on the PTO, complete the portions of the checklist entitled "Equipment".

c. If Rule 320 applies, amend the checklist to include the applicable restrictions of the rule.

4. Obtain access to the facility using the procedures outlined in the Access Policy and Procedure document (I.B).

5. Conduct a pre-inspection interview of the facility operator
   a. Verify PTO posted or is readily available.
   b. Verify recordkeeping logs are being maintained and review them for administrative and operational compliance.
   c. Verify hazardous waste manifests.
   d. Discuss PTO conditions.
   e. Discuss ATCM requirements.

6. Inspect Washing/Extraction/Drying equipment (fill-out checksheet)
   a. Verify equipment is same as described on PTO.
   b. Inspect for liquid leaks (i.e., cartridge filter housings; base solvent tanks; loading door; piping; etc.).
   c. Inspect for vapor leaks during the drying and cool-down phases. Whenever possible, the inspector shall use a Halogenated Hydrocarbon Detector to detect vapor leaks. The probe of the instrument shall be placed about 1 cm away from the component being tested. If the instrument has the ability to quantify the perc concentration during a leak, the inspector shall note that amount on the checklist. If it does not have the ability to quantify the perc concentration and a vapor leak is detected, the inspector shall use either Drager or Sensidyne tubes to quantify the perc concentration leak. If a leak detector is not available, the inspector shall attempt to detect vapor leaks visually and/or by placing a piece of paper next to the component to see if there is an air flow at that point. If the inspector detects the presence of perc in the ambient air, the inspector shall put on effective respiratory gear for safety purposes.
   d. Inspect refrigerated condenser. Note compressor size. Note refrigerant level. Check for "scaling", buildup, or corrosion.
   e. Verify that there is a visible graduated thermometer which measures the temperature of the outlet vapor stream. Note the outlet vapor temperature during the cool-down phase.
   f. Verify that lint and button traps are closed and free of debris.
   g. During the interim period prior to "converting" or obtaining a new closed-loop machine, if a facility has a carbon adsorber, determine the minimum frequency for desorption and verify that desorption has been done accordingly.
7. Inspect Filtering and Distillation System
   a. Verify equipment is the same as described on the PTO.
   b. Inspect for leaks (vapor and liquid).
   c. Note the type and number of filters.
   d. Inspect the distillation system (still and muck cooker). Note if the equipment is integral or separate. If separate, check to ensure it does not exceed 75% of capacity and is cooled to 100°F or less before emptying or cleaning. Determine how often the perc is cooked and how long it takes.
   e. Verify produced water storage is covered.

8. Inspect Solvent Storage
   a. Verify that equipment is the same as described on the PTO.
   b. Inspect for leaks.
   c. Verify that storage tanks are sealed.

9. Inspect Waste Storage
   a. Verify that all waste storage containers are covered.

10. Inspect Boiler
    a. Verify that equipment is the same as described on the PTO.

DOCUMENTATION:

The inspector will document the inspection and any violations observed using the procedures outlined in the Inspection Report (I.F.), the Notice of Violation (VII.A.) and Administrative Infractions (VII.A.1) Policy and Procedure documents. If no violations are detected, the Inspector will document the inspection with only the Dry Cleaning Operation Inspection Checklist (ENF-25).
**FID No:**

**PERMIT TYPE:**

**ATC#**

**PTO#**

**DATE:**

**TIME IN:**

**TIME OUT:**

**SUP. OK:**

**FACILITY NAME:**

**LOCATION:**

**PHONE:** ( )

**MAILING:**

**CONTACT:**

**TITLE:**

**ACCESS GRANTED:** Yes/No  **BY WHOM/TITLE:**

**INSPECTOR:**

**INSPECTION TYPE:** Routine  **SCDP**  **Reinsp**  **Other**

**Last Inspection Date:** / /

**IN COMPLIANCE?** Yes/No  **NOV#**

**Violation:** ATCM  **Rule#**  **PC#**  **AIDoc#**

**Engineering Division, see comments at end of report:** Yes/No

**EQUIPMENT INSPECTED**

**DRY TO DRY MACHINE(s)**

1. **"Vented"**
   - **Capacity (lbs):**
   - **Make:**
   - **Ser #:**
   - **Primary Control System:**
   - **Secondary Control System:**

2. **"Closed-Loop", or "Converted Closed-Loop"**
   - **Capacity (lbs):**
   - **Make:**
   - **Ser #:**
   - **Primary Control System:**
   - **Secondary Control System:**

**TRANSFER MACHINE**

**Washer**

- **Capacity (lbs):**
- **Make:**
- **Ser #:**

**Extractor**

- **Capacity (lbs):**
- **Make:**
- **Ser #:**

**Washer/Extractor**

- **Capacity (lbs):**
- **Make:**
- **Ser #:**
Dryer
Capacity (lbs) Make
Model Ser # 

TYPE OF FILTER & DISTILLATION SYSTEM

Cartridge Filters

(Number ) Paper Filters
Activated Carbon Filters (All Carbon Filters)
Paper and Carbon Filters (Carbon Core Filters)

Make Model
Ser # Date Installed
Scheduled Replacement Date
Filter Pressure Reading

Adsorptive Filters

(Number ) Diatomaceous Earth Filters
Activated Clay Filters

Make Model
Ser # Date Installed
Scheduled Replacement Date
Filter Pressure Reading

Disk Filters

(Number ) Dacron Mesh/60 Micron "Powder Filters"
Dacron Mesh/30 Micron "Non-Powder/Eco. Filters"

Make Model
Ser # Date Installed
Frequency That Filters Are Spun-Clean
Filter Pressure Reading

Still

( Check ) Internal/Automatic Unit
Separate/Manual Unit

Make Model
Ser # 

Muck Cooker

( Check ) Internal/Automatic Unit
Separate/Manual Unit

Make __________________________ Model ____________________
Ser # __________________________

EMISSION CONTROL SYSTEM (DRYER EXHAUST)

Condenser

Water-Cooled Condenser YES / NO Visible Thermometer YES / NO
Refrigerated Condenser YES / NO Outlet Vapor Temperature __________

Make __________________________ Model ____________________
Ser # __________________________ Compressor (hp) __________

Carbon Adsorber

Make __________________________ Model ____________________
Ser # __________________________ Pounds of Carbon __________

Carbon Regeneration Method __________________________
Carbon Regeneration Cycle __________ (Lbs Cleaned/Lbs Of Carbon)
Air Flow Capacity __________________ (Standard Cubic Feet/Minute)
Min. Steam Pressure __________________ (Pounds Per Square Inch)
Exhaust Gas Recirc. Temp. (°F) __________________
Method Of Disposing Produced Water __________________
Date Carbon Was Last Desorbed __________________

BOILER

Make __________________________ Model ____________________
Fuel Type ______________________ Size __________________ (MMBTU/HR)

SOLVENT

Perchloroethylene YES / NO Stoddard YES / NO
Pounds Of Clothes Cleaned Per Month (max)
Gallons Of Solvent Added Per Month (max)
Gallons Of Waste Solvent Removed/Month (avg)
Net Gallons Of Solvent Emitted/Month (max)
Permit Throughput Limit (Gallons/Month) __________________
Approximate Monthly Mileage __________________
Suppliers __________________

Storage Tanks
Number Of Tanks _______ Total Capacity Of Tanks (Gals) ________
HAZARDOUS WASTE DISPOSAL

Muck/Still Oil
Gallons Generated/Month Method Of Disposal

Diatomaceous Earth Dust ENFORCEMENT REFERENCE: 17 CCR, Section 93109
Amount Generated (Weight) Drain Time Prior To Disposal (48 Hours) Method Of Disposal

(f)(1)(A)5.i.

(f)(1)(A)5.i.

Cartridges
Total Number Disposed Of Per Year Drain Time Prior To Disposal (24 Hours) Method Of Disposal

(f)(1)(A)5.i.

Emission Control Produced Water
Gallons Generated/Month Method Of Disposal (Waste Water Evaporator)

Waste Disposal
Name Of Hazardous Waste Hauler
Most Recent Manifest Number
Date

TYPE OF VAPOR LEAK DETECTOR
Halogenated-Hydrocarbon Detector
Portable Gas Analyzer
Other

COMPLIANCE DETERMINATION (CIRCLE) ENFORCEMENT REFERENCE
Equipment In Good Condition YES NO Rule 201
(f)(1)
Equipment Alterations YES NO (f)(2)(C)
Liquid Leaks YES NO (f)(2)(C)
Vapor Leaks YES NO (f)(1)(A)6.
Still Filled Below 75% Capacity YES NO (f)(1)(A)6.
Still Emptied Below 100°F YES NO Permit (g)(3)(B)2.i.b.
Proper Waste Disposal YES NO (g)(3)(A)4.i.
Adequate Compressor Size For YES NO (f)(1)
Refrigerated Condenser (Converted) During "Cool-Down", Outlet Vapor (f)(1)
Temperature (<46°F) YES NO (f)(1)(A)8.
Condenser Coils In Good Condition YES NO (f)(2)(C)
Adequate Refrigerant Level YES NO (f)(2)(A)8.
Lint Trap Gasket Condition Good YES NO (f)(2)(C)
Lint Trap Closed YES NO (f)(2)(A)8.
Machine Door Gaskets Leak Free YES NO (f)(2)(C)
Button Trap Closed YES NO (f)(2)(C)
Button Trap Seal Leak Free YES NO (f)(2)(C)
Pumps Leak Free YES NO
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<td>All Materials Removed From The Dip</td>
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<td>(d) (1) (B)</td>
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<td>(d) (1) (A)</td>
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**Comments and Compliance with Specific Conditions:**

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