AIR POLLUTION CONTROL DISTRICT
REGULATORY COMPLIANCE DIVISION

POLICIES AND PROCEDURES

Policy No. II.L
Supersedes Date October 9, 1991
Date April 25, 1995

Draft ____
Final X
Pages 13

Topic: Dry Cleaners

Distribution: All Policy Holders

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 perc-laden 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.

"Adsorptive" 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 a 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 perceptable perc odor, then it is quite possible that it contains over one percent perc.

"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# _____

DRY CLEANING OPERATION
Inspection Checklist

DATE: _____
TIME IN: _____
TIME OUT:_____
SUP. OK: _____

FACILITY NAME: _____

LOCATION: _____ PHONE: ( ) _____

MAILING: _____

CONTACT: _____ TITLE: _____

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

INSPECTOR: _____ Last Inspection Date: __/__/__
INSPECTION TYPE: Routine ____ SCDP ____ Reinsp ____ Other _____
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)

	(Check)		
"Vented"	_____	Primary Control System	YES / NO
"Closed-Loop", or	_____	Secondary Control System	YES / NO
"Converted Closed-Loop"	_____		

Capacity (lbs) _____ Load Capacity (Loads/Hr) _____
Make _____ Model _____
Ser # _____ Avg Load Rate (lbs cleaned/day) _____

(2)

	(Check)		
"Vented",	_____	Primary Control System	YES / NO
"Closed-Loop", or	_____	Secondary Control System	YES / NO
"Converted Closed-Loop"	_____		

Capacity (lbs) _____ Load Capacity (Loads/Hr) _____
Make _____ Model _____
Ser # _____ Avg Load Rate (lbs cleaned/day) _____

TRANSFER MACHINE

Washer
Capacity (lbs) _____ Load Capacity (Loads/Hr) _____
Make _____ Model _____
Ser # _____ Avg Load Rate (lbs cleaned/day) _____

Extractor
Capacity (lbs) _____ Make _____
Model _____ Ser # _____

Washer/Extractor
Capacity (lbs) _____ Make _____
Model _____ 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) (f)(1)(A)5.i.
Method Of Disposal _____

Cartridges
Total Number Disposed Of Per Year _____
Drain Time Prior To Disposal (24 Hours) (f)(1)(A)5.i.
Method Of Disposal _____

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**	(f)(1)
Equipment Alterations	YES	**NO**	Rule 201
Liquid Leaks	**YES**	NO	(f)(2)(C)
Vapor Leaks	**YES**	NO	(f)(2)(C)
Still Filled Below 75% Capacity	YES	**NO**	(f)(1)(A)6.
Still Emptied Below 100°F	YES	**NO**	(f)(1)(A)6.
Proper Waste Disposal	YES	**NO**	Permit
Adequate Compressor Size For Refrigerated Condenser (Converted)	YES	**NO**	(g)(3)(B)2.i.b
During "Cool-Down", Outlet Vapor Temperature (<46°F)	YES	**NO**	(g)(3)(A)4.i.
Condenser Coils In Good Condition	YES	**NO**	(f)(1)
Adequate Refrigerant Level	YES	**NO**	(f)(1)
Lint Trap Gasket Condition Good	YES	**NO**	(f)(1)
Lint Trap Closed	YES	**NO**	(f)(1)(A)8.
Machine Door Gaskets Leak Free	YES	**NO**	(f)(2)(C)
Button Trap Closed	YES	**NO**	(f)(1)(A)8.
Button Trap Seal Leak Free	YES	**NO**	(f)(2)(C)
Pumps Leak Free	YES	**NO**	(f)(2)(C)

	(CIRCLE)		ENFORCEMENT REFERENCE
Water Repelling/Dip Tank Operations Fitted With A Vapor Tight Cover	YES	**NO**	(i)(2)(A)
All Materials Removed From The Dip Tank Dried Inside The D.C. Machine	YES	**NO**	(i)(2)(C)
Perc Purchase Receipts	YES	**NO**	(d)(1)(B)
Pounds Of Clothes/Load Records	YES	**NO**	(d)(1)(A)
Operations & Maintenance Checklist	YES	**NO**	(d)(1)(C)
Weekly Leak Checklist Maintained	YES	**NO**	(d)(1)(C)
Service & Repair Log Maintained	YES	**NO**	(d)(1)(D)
Annual Report Received (Date)	YES	**NO**	(e)
Environmental Training Certification Prior To (4-1-96)	YES	**NO**	(f)(3)
Compliance With Permit Throughput Conditions	YES	**NO**	

COMMENTS AND COMPLIANCE WITH SPECIFIC CONDITIONS: