

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109



Regulation 2, Rule 1 General Requirements
Regulation 8, Rule 17 Non-halogenated Solvent Dry Cleaning Operations
Regulation 8, Rule 27 Synthetic Solvent Dry Cleaning Operations
Regulation 11, Rule 16 Perchloroethylene and Synthetic Solvent Dry Cleaning Operations

Staff Report

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Staff Report outlining the proposed amendments to the District's Dry Cleaning Regulations. This report has been prepared by the staff of the Bay Area Air Quality Management District. Publication does not signify that the mention of trade names or commercial products constitute endorsement or recommendation for use.

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I. EXECUTIVE SUMMARY

The staff of the Bay Area Air Quality Management District (District) is proposing changes to four existing regulations that control air emissions from dry cleaning equipment: Regulation 2, Rule 1 General Requirements, Regulation 8, Rule 27 Synthetic Solvent Dry Cleaning Operations, Regulation 8, Rule 17 Non-halogenated Solvent Dry Cleaning Operations and Regulation 11, Rule 16 Perchloroethylene and Synthetic Solvent Dry Cleaning Operations. The key driving factors of the proposed rule revisions are amendments by the United States, Environmental Protection Agency (USEPA) to the National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, and by the California Air Resources Boards (CARB) to the Airborne Toxics Control Measure (ATCM) for Emissions of Perchloroethylene from Dry Cleaning Operations. Additionally, developments in the many different types of “Alternative Technology” solvents and improved dry cleaning equipment control technologies also significantly contributed to the recommended changes.

The proposed Rule 11-16 incorporates recent changes in State Law. The California Air Resources Board amended the ATCM for Perc dry cleaning operations, which became effective on December 27, 2007. The proposed changes (*summarized in Table 1*) would prohibit new installations and relocations of dry cleaning equipment using Perc and phase out existing Perc solvent dry cleaning equipment.

The District regulated synthetic solvents, or halogenated organic solvent dry cleaning equipment since 1980 under Rule 8-27, although this was more specific to Perc solvent until 1990. Rule 11-16, first adopted in 1994 addressed changes in USEPA and CARB statutes. This rule has set emission standards for synthetic solvents used in textile cleaning by limiting air emissions of these compounds, with the goal of reducing exposure levels and potential harmful health impacts to the Public.

Many, but not all synthetic solvents cause adverse health effects over long-term exposure. The best synthetic solvent example is one of the most widely used dry cleaning solvents: Perchloroethylene. Also known as Tetrachloroethylene or Perc, this solvent is classified as a Group IIA, “probably carcinogenic” by the International Agency for Research on Cancer (IARC).

Table 1. Major Provisions of Proposed Regulation 11, Rule 16

- Prohibit the installation of new Perc dry cleaning machines.
- Prohibit Dip Tank Operations.
- Eliminate the use of existing Perc machines at co-residential facilities and converted machines by July 1, 2010.
- Effective July 1, 2010, require that all Perc machines must be removed from service once they become 15 years old.
- Require that remaining Perc machines must be removed from service by January 1, 2023.
- Expand good operating practices.
- Expand recordkeeping and reporting requirements
- Prohibit halogenated solvent spotting solutions.

The proposed changes to Rule 8-17 (*summarized in Table 2*) reflect the significant improvements in control technologies available in the newer solvent dry cleaning equipment and the development of alternatives to Perc and Stoddard solvent. Hydrocarbon solvents with high flashpoints were created in response to environmental regulatory restrictions in Germany in 1991. The German Dry Cleaning Industry also created third generation closed-loop technology for these newer solvents. As Perc solvent has become increasingly expensive in California and environmentally unfavorable, dry cleaning facilities adopted the newer alternative technologies. Rule 8-17 needs to be updated to address and incorporate the new technologies. Additionally, the solvent definition needs expansion to address newer solvent formulations that are not currently described by the rule or any other District dry cleaning regulation.

Table 2. Major Provisions of Proposed Regulation 8, Rule 17

- Rename the rule to Non-halogenated Solvent Dry Cleaning Operations.
- Incorporate new solvent applicability to the rule.
- Prohibits transfer or vented equipment; all new machines must be closed-loop.
- Prohibits Dip Tank Operations.
- No transfer of materials from the drum mid-cycle from a closed-loop machine to a separate dryer.
- No halogenated solvents such as Perchloroethylene or trichloroethylene in spotting solutions.
- All facilities must keep records for exemption or permit compliance.
- All facilities must report annually or as required.
- All facilities must permit or register new equipment.

The proposed changes to Regulation 2, Rule 1, Section 120 Exemption, Dry Cleaning Equipment would reduce the amount of solvent that exempts a facility from permit requirements from the current 700 gallons/year to 200 gallons/year. Registration would be required for all facilities that continue to qualify for this exemption. All facilities that use more than 200 gallons/year would require permits for their equipment.

Staff proposes deletion of Regulation 8, Rule 27 Synthetic Solvent Dry Cleaners: This rule was not removed from the active regulation listing because of various stages of classification imposed at the Federal level. Originally classified as a Volatile Organic Compound (VOC), Perc was added to a group of compounds known as “negligibly-reactive” in 1983. The USEPA further proposed for Perc to be “excluded” from the VOC categorization in 1993. However, the re-designation was not approved until January 26, 1996. In the interim, USEPA completed their hazardous air pollutant evaluation and created a new standard for Perc emissions that require the District to address and adopt Rule 11-16 in 1994. As a precautionary measure for the state implementation plan (SIP), due to the length of consideration by USEPA and the differing categories and requirements, this rule was never removed from the active regulation listing.

II. BACKGROUND

There are four current regulatory statutes formally adopted by The District's Board of Directors authorizing the regulation of dry cleaning equipment. Each addresses a specific group of dry cleaning equipment, according to the District's regulatory structure. Precursor Organic Compounds (POC) emissions form unhealthy ground-level ozone, while Non-Precursor Organic Compounds (NPOC) do not react in the atmosphere to produce ozone, but may have other health issues. Regulation 8, Rule 27, regulated halogenated NPOC and POC solvent until superseded in 1994 by Regulation 11, Rule 16. Regulation 8, Rule 17 specifically regulates POC hydrocarbon solvent dry cleaning equipment. Regulation 2, Rule 1, Section 120 addresses permit exemption levels.

A. INDUSTRY DESCRIPTION

Over 56 percent or 500 facilities dry cleaning facilities located within the District use Perc as a cleaning solvent. There are three types of Perc dry cleaning machines in use: machines converted from vented to closed-loop (converted), closed-loop machines with refrigerated condensers (closed-loop), and secondary control machines. Secondary control machines are separated into closed-loop machines with add-on secondary controls and closed-loop machines with integral secondary controls (secondary control or integral secondary control).

The second most common solvents in use are high flash point hydrocarbon solvents manufactured by ExxonMobil (DF-2000™ Fluid) and by Chevron (EcoSolv® Fluid). Other hydrocarbon solvents being used include: PureDry®, Shell Sol 140 HT (Shell 140), and Stoddard Solvent. The most advanced hydrocarbon machines may use any of the hydrocarbon solvents mentioned. Currently, 37 percent or 330 of all dry cleaning facilities located within the District are currently using hydrocarbon solvents. All hydrocarbon solvents are classified as POC. Presently, there are two types of machines operating in the District: transfer machines and closed-loop.

In addition to hydrocarbon solvents, dry cleaners are also using other solvents such as decamethylcyclopentasiloxane (D5), and glycol ethers (Rynex or Rynex 3). Volatile methylated siloxane or D5 is an odorless, colorless liquid and it is used in GreenEarth™ dry cleaning solvent. GreenEarth™ solvent is primarily used in hydrocarbon machines and classified as a NPOC. The Office of Environmental Health Hazard Assessment (OEHHA) is currently evaluating the toxicity testing data submitted by GreenEarth. Currently, 3 percent of the District's Dry Cleaning facilities use D5 solvent. Additionally, Rynex 3 is a mixture of substituted aliphatic glycol ethers with limited toxicity data. It is also classified as a POC. Less than 1 percent of the Dry Cleaning facilities are currently using Rynex 3: all of them use closed-loop equipment.

Professional wet cleaning, an alternative to dry cleaning that was first introduced in 1991, differs from commercial laundering in several aspects. Wet cleaning uses computer-controlled washers and dryers with specially formulated detergents and surfactants. Additional finishing equipment includes pressing and tensioning units. The tensioning units are used to touch-up, stretch, reform, and finish the garments. Ideally, wet cleaning systems use non-toxic, biodegradable detergents, which are approved for disposal into the sewer. Wet Cleaning, considered non-toxic and non-smog forming, is currently unregulated by the District.

Carbon Dioxide (CO₂) cleaning, an alternative to dry cleaning that uses a process that operates within a pressurized, and therefore relatively costly, machine. The CO₂ used in this process is an industrial by-product from existing operations, primarily anhydrous ammonia (typically fertilizer) production. There is no net increase in the amount of CO₂ emitted; therefore, this process does not contribute to global warming. CO₂ cleaning, considered non-toxic and non-smog forming, is currently unregulated by the District.

Green Jet cleaning, an alternative to dry cleaning that refreshes and dries garments in a single computer-controlled unit using a mist of water, bio-degradable detergent and adsorbent pads. Green Jet, considered non-toxic and non-smog forming, is currently unregulated by the District.

B. REGULATORY HISTORY

1. Regulation 8, Rule 27

a. Impact Summary

There will be no impact to any dry cleaning facility from the deletion of this rule: it is obsolete. The regulation of all synthetic solvent dry cleaning equipment previously administered by Rule 8-27 has been delegated to Rule 11-16 since 1994.

b. Regulatory History

Initially adopted by the District on March 5, 1980 as an ozone control measure, Rule 8-27 explicitly focused on Perc solvent requirements. The rule was amended on March 17, 1982 to address emission control requirements under Section 302. The USEPA added Perc to a list of negligibly-reactive compounds which would be exempt from regulation under the State Implementation Plan for attainment of the ozone standard on October 24, 1983, but did not make a final decision about toxicity prompting a less restricted use of the solvent. Still, the 1982 revisions had a phase-in clause that increased the applicability of the rule over a 3 year period; requiring permits and further regulating most Perc equipment.

The next amendment to Rule 8-27 occurred to Section 301 on November 21, 1984 to comply with hazardous waste disposal requirements mandated by the California Code of Regulations (CCR), known then as the California Administrative Code (Title 22, Division 4, Chapter 30). It was also a forerunner of limiting waste solvent evaporation, requiring covers and metal containers to prevent evaporation.

Rule 8-27 was last amended on September 5, 1990, to address operating standards and control requirements for closed-loop and vented dry-to-dry technology. Additional halogenated solvents such as trichlorotrifluoroethane (CFC-113) and 1,1,1-trichloroethane (TCA) prompted the District to expand the scope of the regulation. The title of Rule 8-27 was revised from "Perchloroethylene Dry Cleaning Operations" to "Synthetic Solvent Dry Cleaning Operations."

2. Regulation 8, Rule 17

a. Impact Summary

The impact will be fairly minimal for all sources currently covered by this rule and for the sources projected to be covered by this rule, once the proposed changes are adopted. Closed-loop equipment has been standard technology for the dry cleaning industry for over 10 years. The lower operational costs were one of the driving factors leading to the abandonment of the older transfer equipment that dominated most of the 20th Century. The changes to the Rule 8-17 will describe and update these operational requirements incorporating the current lower emitting equipment standards and prohibiting the reintroduction of the older technology. Additionally, the solvent definition will be expanded and the rule will be renamed to address all non-halogenated solvents.

b. Regulatory History

The District originally adopted the Rule 8-17, Petroleum Solvent Dry Cleaning Operations rule as an ozone control measure on May 21, 1980. All equipment types then were first generation transfer units, with a separate washer and dryer. Emission control requirements were updated on March 17, 1982 to conform with similar updates that were made on that date to the emission control requirements in Rule 8-27.

The next rule revision occurred on March 20, 1985, to eliminate the medium user exemption (section 112) and identify and address solvent filtration requirements (section 303). Additionally, standards for condensers used in solvent recovery dryers and requirements for filter cartridge solvent evaporation were added.

Rule 8-17 was last updated on September 5, 1990 to insert leak check requirements, update hazardous waste transport standards and to implement minor improvements in control technology standards. Recordkeeping requirements, manual of procedure (MOP) requirements and stringent controls for solvent evaporation were also added on this date.

Additional requirements from other regulations also were reviewed for applicability. The USEPA, under section 111 of the federal Clean Air Act, has established pollution control requirements for specific industrial activities that emit significant “criteria air pollutants” such as volatile organic compounds (VOCs). These standards are intended to establish minimum nationwide requirements for new facilities and are known as new source performance standards (NSPS).¹ Petroleum dry cleaners have an NSPS provision for transfer equipment that was established by USEPA on September 21, 1984. This was after the original 1980 Rule 8-17 adoption date. The District has since received delegation by USEPA on September 5, 1990 for this standard and the current rule meets or surpasses this standard. The proposed changes will be more stringent and will improve on the current Rule 8-17 standards, thus the District should continue to qualify for USEPA NSPS delegation.

3. Regulation 2, Rule 1, Section 120

a. Impact Summary

Regulation 2, Rule 1, Section 120 describes the qualifying criteria for a facility to be exempt from District permit requirements for its dry cleaning equipment. Lowering of the permit exemption level to 200 gallons/year from 700 gallons/year is expected to have minimal impact on alternative solvent facilities (the permit exemption does not apply to Perc equipment or equipment that uses more than 1% by weight of halogenated compound). Approximately 95% of existing exempt facilities will continue to qualify for Rule 2-1, Section 120 exemption and the remaining 5%, which are the larger solvent users, will need permits. The District currently has approximately 330 alternative solvent facilities. This translates to roughly 17 – 20 facilities losing their permit exemption status. Additionally, the lower exemption level should encourage better solvent conservation practices for facilities choosing to continue to qualify for this exemption.

b. Regulatory History

This section was originally adopted on October 10, 1983, and the initial qualifying exemption level was 700 gallons/year for petroleum dry cleaning. The upper limit for this exemption has remained the same for over 25 years, but has been expanded to cover other non-halogenated solvents in addition to petroleum to create additional incentives to switch from using Perc.

¹ NSPS are detailed in 40 CFR Part 60.

4. Regulation 11, Rule 16

a. Impact Summary

All Perc solvent equipment in the Bay Area will be impacted by the proposed changes to this regulation. Approximately 500 Perc solvent dry cleaning facilities will be phased-out by the proposed amendments. The largest number of facilities affected will be affected by July 1, 2010 when approximately 66 % of the 500 facilities (330 facilities) will be required to replace their equipment with alternative solvent technology or shut down. The remaining 34% will be affected over the next 13 years until January 1, 2023 when all Perc solvent equipment will be prohibited. Facilities not adopting alternative technologies are expected to contract with other facilities in operation with valid permits or with registered facilities in operation with alternative solvent technology; becoming a drop shop, where no dry cleaning is done on premises, on or after the shut-down date for their respective equipment. Table 3 shows the breakdown by year of projected number of facilities retiring their Perc solvent equipment.

Table 3. Projected Facilities Impacted by Proposed Regulation 11, Rule 16 Changes

Date	Number of Facilities Affected	Percent
July 1, 2010	328	66
January 1, 2011	31	6
January 1, 2013	92	18
January 1, 2015	24	5
January 1, 2017	8	2
January 1, 2019	6	1
January 1, 2021	7	1.2
January 1, 2023	4	0.6
Total	500	100

b. Regulatory History

The District has a history of implementing regulatory requirements in advance of state or federal government agencies and this is reflected in part, by the history of dry cleaning regulations. For example, Rule 8-27 was the first District rule to regulate Perc solvent dry cleaning. It was adopted by the District's Board of Directors on March 5, 1980. The last modification to Rule 8-27 took place on September 5, 1990 and expanded the scope of the regulation to include all synthetic solvents. The requirements of the USEPA and CARB began 1990, ten years later, with the critical identification of Perc as potentially harmful.

i) Perc Identification as a Hazardous Air Pollutant

Although recommended for reclassification as negligible to ground level ozone formation since 1983 by the USEPA, Perc became one of 189 chemicals classified as a hazardous air pollutant (HAP) by the 1990 Clean Air Act amendments. This HAP designation meant that a federal control standard for Perc would have to be identified and adopted.

ii) Perc Identification as a Toxic Air Contaminant

The California Air Resources Board (CARB) identified Perchloroethylene (Perc) as a toxic air contaminant (TAC) under California's Toxic Air Contaminant Identification and Control Program (Health and Safety Code section 39650 et. seq.) in October 1991, prompting the state to review Perc solvent dry cleaning equipment emissions and adopt appropriate action.

iii) Perc NESHAP Standard

In September 1993, USEPA adopted a new NESHAP standard, the "National Perchloroethylene Air Emissions Standards for Dry Cleaning Facilities." The NESHAP established three source categories: small, large and major. Equipment types (dry-to-dry, transfer) were also identified. Maintenance (leak check and repair schedules) and recordkeeping provisions were also established. It also specified air emissions control based on the type of equipment used, the installation date and the amount of Perc purchased per year.

iv) Perc ATCM Standard

On October 14, 1993, one month after the Perc NESHAP standard was approved; CARB adopted the ATCM for Emissions of Perc from Dry Cleaning Operations and the Environmental Training Program for Perchloroethylene Dry Cleaning Operations (Perc Certification Program). Similar in scope to the Perc NESHAP but more stringent, the Dry Cleaning Operations ATCM identified the equipment, operation, maintenance, recordkeeping, and reporting requirements for Perc solvent dry cleaning operations. Further, the Environmental Training Program set forth the guidelines and criteria for CARB to train and approve instructors who then teach dry cleaning operators the proper operational standards and maintenance procedures for their Perc solvent dry cleaning equipment.

v) District Hazardous Pollutant Standard

Based on the new regulatory standards at both the Federal and State level, District staff proposed a new regulation. Regulation 8, Rule 27, Synthetic Solvent Dry Cleaners would be replaced with a rule that would conform to the new legislative and regulatory changes. This new rule would incorporate the federal requirements, the state requirements, and the risk reduction measures outlined in SB1731² and implement the risk reduction objectives outlined in the District's Toxic Air Contaminant Risk Reduction Plan. The rule would contain additional exposure reduction requirements for high density population areas in the Bay Area that typically contain dry cleaning facilities in buildings co-located with residences and other commercial businesses. The District Board of Directors approved this new regulation, Regulation 11, Rule 16, Perchloroethylene and Synthetic Dry Cleaning Operations, on December 12, 1994.

Rule 11-16 had a four-year implementation schedule. However, as the control equipment requirement milestones approached over the years, the cost for the required additional controls became controversial with many owners of Perc solvent dry cleaning equipment. They expressed their concerns at a few District Board Meetings and lobbied for a permanent exemption or a multi-year variance. A one year variance was granted. At the end of the fifth year, all Perc solvent dry cleaning facilities were in compliance. Alternative solvent dry cleaning technologies existed at this time, but no formal incentive existed for Perc solvent facilities to adopt alternative solvent equipment until October 2003, when the California's State Legislature passed AB998 (Assembly Bill 998, discussed in more detail below). Nevertheless, many dry cleaners voluntarily switched to alternatives when they needed to replace a dry cleaning machine.

² Senate Bill 1731, Facility Toxic Air Contaminant Risk Reduction Audit and Plan -- Section 44390 et al of the California Health and Safety Code.

vi) AB998

AB998 established a Non-Toxic Dry Cleaning Incentive Program to provide financial grants for the dry cleaning industry to switch from equipment using Perc solvent to non-toxic, non-smog forming alternatives. These grants are financed by a three-dollar (\$3) per gallon tax on California Perc Solvent Distributors. This fee, starting in 2004, increased one-dollar (\$1) per gallon per year from 2005 through 2013. CARB administers the collected funds via a grant program, providing up to \$10,000 financial assistance in the form of grants, to assist dry cleaners in switching to alternative cleaning technologies such as wet cleaning and carbon dioxide (CO₂) cleaning. The balance of funds is to be used to establish demonstration programs that would showcase and promote acceptable alternative solvent technologies.

The tax requirement from this state law acted like a catalyst for change: Perc equipment owners in reaction to the increase in solvent prices and the projected solvent price increases began to investigate non-Perc solvent technologies. (The additional incentives of lower permit fees and fewer regulatory requirements also supported their decision.) The media's favorable coverage of environmentally responsible dry cleaning also helped to distinguish these new technologies and galvanize public support. Dry cleaning facilities began to adopt alternative cleaning technologies to keep overhead costs low and to demonstrate environmental good will.

vii) Amended District Standard

Rule 11-16 was updated in 2005 to incorporate the new provisions of Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants.

viii) Amended Perc NESHAP Standard

The original NESHAP update was proposed in 2006, but USEPA has released several updates since then, most recently on July 11, 2008. The updated Perc NESHAP identified three source categories: major, area and co-residential. Fortunately, there are no facilities with Perc equipment within the District that qualify for the NESHAP definition of a major source. Accordingly, by default, the District is in compliance with all provisions for that source category. The District's current rule also meets or exceeds all Federal requirements for area sources. Thus, the District is in compliance with all provisions for area sources. Co-residential sources on the other hand, need to be addressed.

The updated NESHAP co-residential requirements now contain two prohibitions that are more stringent than the District's current rule: a prohibition against new co-residential Perc facilities after December 21, 2015, and a prohibition against continued operation of all existing co-residential Perc facilities by December 21, 2020. The District has not permitted any new co-residential Perc facility since 2005, putting the District by default in compliance with the NESHAP's first prohibition. However, Rule 11-16 has no rule language that prohibits new co-residential Perc facilities after 2015 or any other date. The proposed amendments would prohibit any new co-residential Perc facility (along with all new Perc facilities), effective immediately (date of adoption), and also would prohibit operation of any existing co-residential Perc facility by July 1, 2010. Thus, the District's proposed amendments would phase out co-residential Perc facilities earlier than required by the NESHAP.

ix) Amended Perc ATCM Standard

The amended CARB ATCM became state law on December 27, 2007 and contains equipment phase out provisions that are more stringent than the new NESHAP co-residential phase out requirements discussed above. The ATCM is more stringent than the NESHAP requirement because it reduces emissions of Perc solvent sooner than the NESHAP. For example, the ATCM has a Perc phase out provision that applies to all Perc solvent source types (not just co-residential facilities) and the phase out starts July 1, 2010, which is ten years earlier than the NESHAP standard. Adopting the CARB provisions into Rule 11-16 will bring the District into compliance with the NESHAP requirements.

The ATCM also prohibits new Perc solvent facilities starting after January 1, 2008. There are also more stringent operational and maintenance procedures for all Perc solvent equipment. The current proposed changes to Rule 11-16 will incorporate the ATCM provisions. A comparison of the requirements of the proposed Rule 11-16, the NESHAP and the ATCM has been completed and summarized in Table 5³.

C. TECHNICAL REVIEW

1. Emission Control Technologies

Historically, most Perc dry cleaning equipment that is used in the US was designed and built in Europe. The European Union (EU) has been imposing stricter environmental standards on dry cleaning operations since 1975, which has driven the development of cleaner dry cleaning technologies.⁴ These technologies have evolved in four generations:

a. First Generation

The first generation of equipment is known as Transfer Machines. The distinguishing characteristics of this generation are a separate washer and dryer. Solvent laden clothes are passed or transferred from washer to dryer by hand. The dryer uses a water condenser that cools the recirculating air to recover some of the solvent during the deodorizing part of the dryer cycle. The remaining air is exhausted into a carbon adsorber or a refrigerated condenser in later models. If the dryer is equipped with an adsorber, it is replaced or regenerated during routine maintenance of the machine. A typical solvent emissions profile ranges from 500 to 1000 gallons per year (see Figure II-C1). This equipment type is now prohibited in California for Perc operations.

b. Second Generation

The second generation of equipment is known as Vented Machines. The distinguishing characteristics of this generation are that it is "dry-to-dry," *i.e.*, clothes go into the machine dry and come out of the machine dry, and that it exhausts solvent into the atmosphere. This machine is one unit and equipped with a water-cooled condenser used to recover solvent during the deodorizing part of the drying cycle. During this time, fresh air is drawn into the machine and exhausted through an external carbon adsorber at the end of the cycle. The adsorber is replaced or regenerated during routine maintenance of the machine. Improper maintenance caused excess emissions because of breakthrough issues that would negate the abatement effectiveness of the adsorber. A typical solvent emissions profile ranges from 200 to 400 gallons per year (see Figure II-C1). This equipment type is now prohibited in California for Perc operations.

³ Table 5 is on p. 38.

⁴ Conference on Security and Co-Operation in Europe, Helsinki 1975.

c. Third Generation

The third generation of equipment is known as Closed-Loop Machines. The distinguishing characteristics of this generation are that they are dry-to-dry, ventless, and do not exhaust to the atmosphere. Hot air from the drying cycle is passed through a refrigerated condenser to recover solvent; the recovered liquid solvent and water mixture is sent to a water separator; the remaining airstream is reheated by heating coils and recirculated back into the drum. The solvent recovered by the water separator then goes to the solvent storage tank. Unlike second-generation machines that inject fresh air, deodorization transpires as the vapor pressure of the solvent is lowered by temperature reduction via repeated passes through the refrigerated condenser (30-45 degrees F). Some machine designs use an inductive door fan that draws air through the loading door and drum when the door is ajar to further reduce worker exposure from residual solvent vapor. Other models have a more formalized fugitive control system comprised of an inductive door fan with a carbon adsorber to further reduce solvent emissions. The adsorber is replaced or regenerated during routine maintenance. A typical solvent emissions profile ranges from 60 to 120 gallons per year (see Figure II-C1). This equipment type currently operates in California.

Additionally, as a cost savings measure to extend the lifespan of the equipment, some vented machines (2nd gen) were retrofitted with a refrigerated condenser and converted to closed-loop. These converted closed-loop machines, although not as efficient limiting solvent emissions as a true closed-loop machine, meet the minimum definition of a closed-loop machine. This modified equipment type currently operates in California.

d. Fourth Generation

The fourth generation of equipment is known as Secondary Control Machines. The distinguishing characteristic of this generation is the addition of an integrated carbon adsorber to a closed-loop machine. The primary control device on a closed-loop machines is the Refrigerated Condenser. The addition of the carbon adsorber, typically an activated carbon bed contained in a metal housing, is the Secondary control device. The two emission control devices work in tandem at the end of the cool down phase of the deodorizing cycle to further reduce fugitive emissions. Solvent vapors from the drum, button and lint traps are routed through the adsorber, reducing the drum concentration of the solvent to 300 ppmv or lower. The carbon is periodically regenerated; using heat and the adsorbed solvent is recovered, further reducing solvent consumption. The regeneration is automatically scheduled and occurs, according to manufacturer's recommendation or after a specific number of wash loads. Other machine designs have retrofitted an external secondary control device onto a closed-loop machine. These external adsorbers have not been able to meet the same control efficiencies as the closed-loop machines with the integral design. A typical solvent emissions profile ranges from 30 to 75 gallons per year (see Figure II-C1). This equipment type currently operates in California.

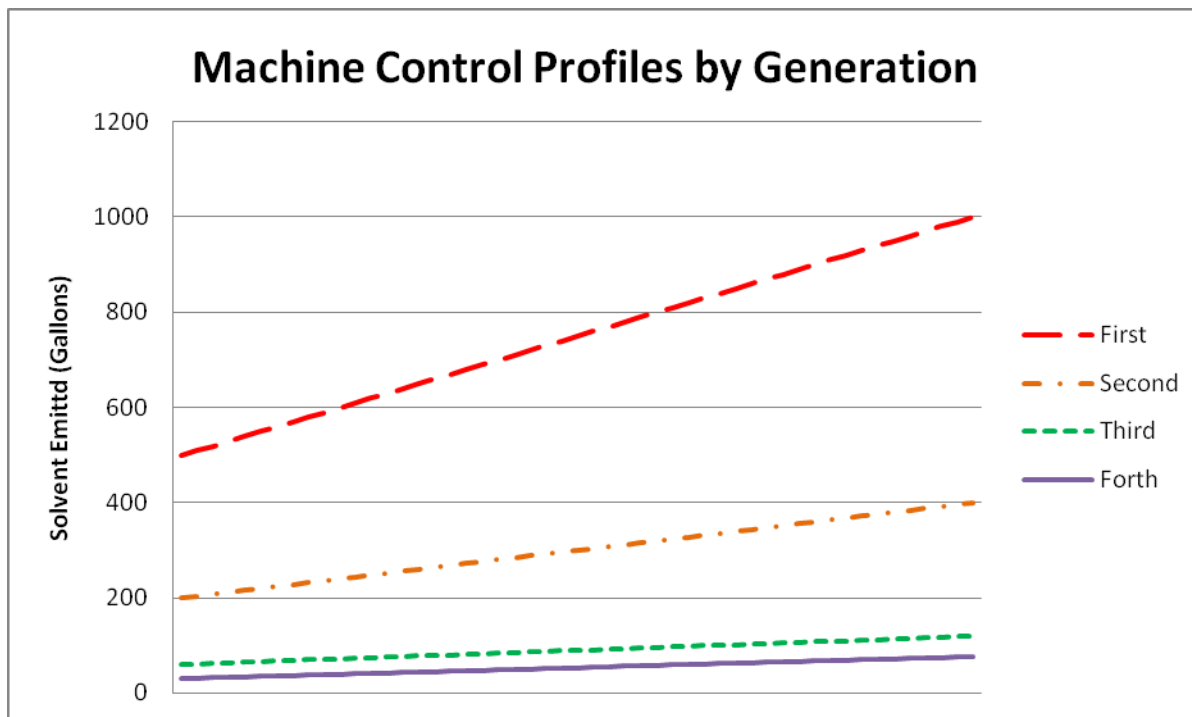


Figure II-C1 – Emission Profiles for Each Generation of Equipment

2. Ventilation Technologies

Ventilation has been used as a risk mitigating measure at dry cleaning facilities and is implemented in several different ways. Ventilation is important as it affects the dispersion of fugitive solvent vapors and other airborne compounds within the facility. Most dry cleaners do not have adequate ventilation systems for good capture or dispersion. Dispersion is typically based on building dimensions, stack dimensions, airflow rate, and capture efficiency of the ventilation system. Dispersion helps to determine the persistence or length of exposure to the solvent vapor, which impacts the potential health risk to nearby residences and businesses. The types of ventilation⁵, in order of increasing effectiveness are:

a. Natural Ventilation

Natural ventilation is the most passive form of ventilation and relies solely upon wind and convective forces to move air in and around the facility. Solvent vapors from windows, doors, roof vents or other openings tend to remain trapped and entrained around the facility for longer periods of time, resulting in greater exposure to workers and nearby residents. Natural ventilation is adequate if the facility is a stand-alone facility with a reasonable buffer zone. It is the least effective form of ventilation.

b. Window Fans

Window fans, or wall fans, are high flow propeller-type fans installed vertically in an external wall or exterior window type opening in the facility. Solvent vapors are exhausted horizontally and near ground level with the vertical component completely dependent on metrological conditions. Window fans typically exhaust into or around adjacent businesses or nearby residences increasing exposure to nearby workers and residents.

⁵ BAAQMD 2001.

c. General Ventilation

General ventilation configurations typically have one or more large capacity fans on the roof of the facility that exhaust horizontally by design or because of rain caps. Capture efficiency depends on the air exchange rate inside the building and is a function of facility size and the fan air-flow rate. Solvent vapors are released at roof level producing better dispersion at ground level. However, the effects of building downwash tend to trap emissions into nearby empty space or cavity zones located around and near the facility. These zones concentrate the emissions, increasing exposure to nearby workers and residents.

d. Local Ventilation

Local ventilation is a descriptor used to define a ventilation system with a high capacity fan, exhaust stack and physical apparatus/structures (fume hoods, shrouds, flexible walls, vertical plastic strips) enclosing the dry cleaning machine and designed to capture fugitive emissions. A ventilation fan captures and exhausts solvent emissions vertically through a stack on the roof of the facility. A combination of walls, plastic curtains and/or plastic strips completely surrounds the equipment with three feet of clearance in front of and behind the machine for operation and maintenance.

e. Partial Vapor Room

Partial vapor room (PVR) is a descriptor used to define a ventilation system that encloses the back of the dry cleaning machine in a small room with the front panel and loading door exposed for operational convenience (loading/unloading). Maintenance doors are designed to be self-closing and kept closed during routine operation of the machine. PVRs more effectively capture fugitive emissions from leaks and maintenance activities when compared to local or general ventilation systems. A ventilation fan captures and exhausts solvent emissions vertically through a stack on the roof of the facility. The loading door fugitive emissions are captured by one of the follow controls: a shroud, an inductive door fan, a fugitive control system or secondary control system.

f. Vapor Barrier Room

Vapor barrier room (VBR) is a descriptor used to define a ventilation system that encloses the entire machine in a small room and is the most health protective vapor capture system. A VBR is constructed with diffusion resistant material (such as metal foil-faced insulation sheets, plastic sheeting between drywall sheets or steel sheeting) with seams and gaps sealed with metalized tape. A ventilation fan captures and exhausts solvent emissions vertically through a stack on the roof of the facility. Maintenance doors are designed to be self-closing and kept closed during routine operation of the machine. VBRs are required for all co-residential dry cleaning facilities in the District and are recommended for non-residential facilities located in high-density population areas. Some non-residential facilities can appropriately construct total enclosures without the barrier material; these are known as vapor capture rooms (VCR).

3. BACT and Toxics NSR

The District describes Best Available Control Technology (BACT) as the most effective emission control device or technique successfully utilized for the type of equipment, or the most stringent emission limitation achieved by an emissions control device determined to be technologically feasible and cost effective. For any new or modified source emitting TACs, Rule 2-5 Toxics New Source Review (NSR) also may apply. This rule can require a more stringent control standard for projects producing a chronic hazard Index (HI) of 0.20 and/or a cancer risk greater than 1.0 in a million (10^{-6}) called Toxics Best Available Control Technology (TBACT). Projects with a chronic or acute hazard index greater or equal to 1.0 or a cancer risk of more than 10 in a million are not permitted (Rule 2-5, Section 302).

a. Halogenated Solvent

The existing BACT standard for halogenated solvent dry cleaning equipment is a Secondary Control Machine. If the cancer risk and/or hazard indexes are elevated, effective ventilation is also required to lower these numbers and reduce the exposure to nearby workers and residences. For example, all co-residential facilities require a secondary control machine enclosed in a vapor barrier room (VBR). This is the most effective form of ventilation. Other types of facilities may use other forms of ventilation provided the overall project risk stays below the maximum project risk requirements levels mandated by Rule 2-5, Section 302.

b. Petroleum Solvent

The existing BACT standard for petroleum solvent (and similar solvent types) is a Closed-Loop Machine.

4. Solvent Emissions

a. Emissions

Solvent emissions are typically determined by material balance. Most of the solvent purchased throughout the year is emitted into the air. Approximately 20-30% of the annual solvent emitted is recaptured and disposed as hazardous waste. A residual amount of solvent is retained by each garment cleaned and slowly evaporates over a several week period. A secondary control system used at the end of each drying cycle, and/or a fugitive control system with an inductive door fan both use a regenerating carbon adsorber to reduce emissions. One of the largest sources of emissions comes from gasket leaks around the tanks, service maintenance ports, and around the loading door. Good operating practices (weekly leak checks, proper maintenance, and regular adsorber regeneration, if applicable) can further reduce solvent emissions.

b. Emission calculations

The following equations are used to determine net solvent emitted from equipment at a dry cleaning facility:

Solvent Emissions = (Solvent Consumption) – (Solvent Waste Credit)

Solvent Consumption = (Solvent Purchases) + (Initial Solvent Inventory) – (Final Solvent Inventory)

Solvent Waste Credit = (Still Oil) (% solvent in Still Oil) + (No. of Filter Cartridges) (solvent/Cartridge)

Default values in lieu of waste test data: 50% volume for still residue; 0.5 gal/cartridge standard or split filters (1 gal/cartridge for Jumbo filters).

5. Solvent Characteristics

a. Toxicity

Perc is the only dry cleaning solvent that has been carefully studied and researched for a long period of time. It has been designated a Hazardous Air Pollutant (HAP) at the federal level and a Toxic Air Contaminant (TAC) at the state level. Perc is known to cause acute⁶ non-cancer health effects such as skin and eye irritation, irregular heart rhythm, respiratory irritation and central nervous system effects

⁶ Short-term

(headaches, intoxication, drowsiness and dizziness). Chronic⁷ exposure may cause liver and kidney dysfunction, and more serious central nervous system effects (diminished cognitive ability). The Office of Environmental Health Hazard Assessment has determined the URV⁸ for Perc to be $5.9 \text{ E-}06 \text{ } (\mu\text{g}/\text{m}^3)^{-1}$, and the chronic non-cancer reference exposure level to be $35 \text{ } \mu\text{g}/\text{m}^3$. The acute non-cancer reference exposure level is $20,000 \text{ } \mu\text{g}/\text{m}^3$. Rule 2-5, Table 2-5-1 lists information specifics on all TACs regulated by the District.

Reference exposure levels (REL) are used as indicators of potential non-cancer effects. A concentration below the REL would not be expected to exhibit adverse non-carcinogenic health effects. The acute REL is compared to the expected one-hour maximum concentration and the chronic REL is compared to the expected annual average concentration to determine the potential for non-carcinogenic health effects. The District lists all regulated TACs and their associated RELs and URVs in Rule 2-5, Toxics NSR, Table 2-5-1. Dispersion modeling using local meteorological data, facility dimensions, nearby building characteristics, ambient monitoring near dry cleaning facilities and source tests are used in conjunction with the engineering analysis to determine exposure levels to nearby residences and workers. Emission levels, proximity and dispersion can significantly factor into exposure determination.

Another significant solvent used in dry cleaning is Trichloroethylene (TCE), a halogenated solvent that has been used in spotting formulations to remove stains from fabrics and is listed in Table 2-5-1. Additionally, 1-bromopropane, also known as n-propyl bromide, a new halogenated solvent, is currently being marketed as a spotting solvent. N-propyl bromide is listed under California Proposition 65 as a chemical known to cause birth defects or other reproductive harm.

There are concerns that some of the newer halogenated solvent formulations may include potential health effects and toxicity issues that have yet to be identified and addressed from a regulatory standpoint. These will be addressed as new data about these newer compounds become known.

b. Flammability and Safety

All dry cleaning facilities should know the potential hazards associated with the process or solvent used in their equipment. Converted machine owners should consult their respective machine manufacturer for safety guidance on their solvent choice. The conversion may not be recommended by the solvent manufacturer or the machine manufacturer. Material safety data sheets (MSDS) with the chemical information, technical data and flammability details are available from the solvent distributor and the solvent manufacturer. The local fire department will consult the state fire code to determine proper handling and storage of the solvent.

The fire code classifies solvent on the basis of flammability. A flammable liquid has a flashpoint below 100 degrees F. A combustible liquid has a flashpoint above 100 degrees F and is classified as follows:

- Class II liquids have a flash point at or above 100 degrees F and below 140 degrees F.
- Class IIIA liquids have a flash point at or above 140 degrees F and below 200 degrees F.
- Class IIIB liquids have a flash point at or above 200 degrees F and below 1500 degrees F.

Most of the newer dry cleaning solvents are classified as combustible liquids. Furthermore, there may be additional building code requirements, such as the installation of sprinkler systems that may have to be addressed, based on the category of the solvent and the amount of solvent used by the equipment. The local planning office will have information on all required building codes, submission requirements and details on the review and approval process.

⁷ Long-term

⁸ Unit Risk Value is the estimated probability of a person contracting cancer from an ambient exposure to $1 \text{ } \mu\text{g}/\text{m}^3$ over a 70 yr lifetime.

6. Halogenated Solvents⁹

a. Perchloroethylene

Despite potential harmful health impacts, most dry cleaners in the District currently use Perc. Perc's classification by CARB as a probable carcinogen, however, has limited its popularity in recent years and encouraged increasing regulatory restrictions.

Perc is the most common name used to refer to the solvent known as Perchloroethylene or Tetrachloroethylene. It does not occur naturally in the environment. The English scientist Michael Faraday, using a thermal decomposition of hexachloroethane, first formally synthesized Perc in 1821. It is a chlorinated aliphatic hydrocarbon containing a double carbon bond. It is a colorless liquid at room temperature, nonflammable (no flash point) and has a boiling point of 250 degrees F. Perc is relatively insoluble in water and the combination of all of these properties makes it an ideal industrial solvent. Perc is also used as a starting material for making other products such as: adhesives, fabric finishers, metal degreasing, silicon lubricants, spot removers, water repellants and wood cleaners. However, historically, the largest application has been associated with the cleaning of textiles, known as dry cleaning.

The dry cleaning process uses non-water-based solvents to remove soil and stains from textiles and clothes. Commercial dry cleaning in the United States became more prominent in the early 20th century and the early solvents were petroleum based such as kerosene, gasoline and Stoddard. However, Perc had much greater stability than petroleum solvents and had better cleaning properties. By the mid-1930s, the U.S. dry cleaning industry had essentially adopted Perc as the preferred solvent.

b. 1-Bromopropane (n-propyl bromide)

1-Bromopropane (n-propyl bromide or n-PB or DrySolv™), a VOC, is solvent being developed as a drop-in alternative solvent for Perc secondary control machines. The solvent is more volatile than Perc and is known to have a strong odor. Rule 11-16 requires all new or modified halogenated solvent dry cleaning machines to be a fourth generation machine and operated according to the manufacturer's recommendations. Environtech International, Inc., the solvent manufacturer, recommends that all facilities replace all rubber gaskets and seals in their existing Perc equipment with Viton equivalents when switching from Perc to n-PB. The California Department of Health Services identified n-PB as a neurotoxin and a reproductive toxin and it is listed under Proposition 65. The compound has not yet undergone formal evaluation for TAC identification. The USEPA is currently reviewing n-PB for inclusion in several HAP standards and confirms the harmful health effects; however, USEPA has proposed allowing the use of n-PB, under the Significant New Alternatives Policy program (SNAP), as a replacement for halogenated compounds and ozone depleting compounds (ODC) such as methyl chloroform, 1,1,1-trichloroethane, CFC 113, and HCFC 141b in industrial processes involving limited human exposure. Most recently, in 2007, USEPA approved TCE and Perc for use in vapor degreasing, circuit board cleaning and other misc applications not related to dry cleaning. Since n-PB is a relatively new solvent to the U.S. markets, new data regarding potential toxicity are still being gathered.

⁹ Halogenated solvents are subject to Rule 11-16.

7. Alternative Technologies¹⁰

a. Petroleum Solvent Cleaning

In 1855, the effectiveness of petroleum based solvents such as kerosene and gasoline in dry cleaning was discovered accidentally, and the solvents became some of the first to be used in the early dry cleaning industry. These solvents had a few shortcomings, however, such as low flash points (below 140 degrees F), odors, and flammability issues that curtailed widespread adoption. Perc, mainly because of its stability (with its lack of a flashpoint), would surpass petroleum based solvents and become the solvent of choice in the 20th century. However, in the last 10 years, with the development of newer high-flash point formulations (above 140 degree F), petroleum based solvents have become the most widely used alternative to Perc. Currently, there are more than 330 petroleum solvent dry cleaners in the District.

The newer formulated solvents are isoparaffins (hydrocarbon chain length: 9 to 13 carbon atoms), which are synthetic hydrotreated aliphatic hydrocarbons. The hydrotreatment removes trace quantities of the aromatic components (such as benzene) producing a less toxic odorless solvent, making it more ideal for dry cleaning applications. All of these solvents are classified by the California State Fire code as Class IIIA combustible liquids which have a flash point above 140 degrees F and below 200 degrees F.¹¹ There are several trade names for these types of solvents produced by various manufacturers.

The newer machines use third generation technology known as Closed-Loop Machines with computerized controls. The distinguishing characteristics are that they are dry-to-dry, ventless, and do not exhaust to the atmosphere. The footprint or size of the equipment is analogous to a Perc Machine. Some of the machines are equipped with nitrogen canisters to produce a "nitrogen blanket" that suppresses the remote possibility of potential solvent ignition. Hot air from the drying cycle is passed through a refrigerated condenser to recover solvent, and then the recovered liquid solvent and water mixture is sent to a water separator, while the remaining airstream is reheated by heating coils and recirculated back into the drum. The solvent recovered by the water separator then goes to the solvent storage tank. Distillation or solvent filtration by an adsorptive medium such as Tonsil® is used to recover the solvent.

Bacterial growth can be an issue with this solvent, creating odor problems that can be imparted onto garments. Solvents should be frequently distilled, and solvent tanks need to be bottom drained frequently, keeping the solvent clear of water contamination should prevent bacterial growth.

Newer types of petroleum closed-loop machines have been designed to use a powdered adsorbent called Tonsil®. Tonsil® is an acid activated form of calcium bentonite. Machines using this technology typically employ a mixture of 50% Tonsil® with an 50% diatomaceous earth blend. The Tonsil® manufacturers claim that their product has four major advantages:

- 1) Control of bacterial growth, thereby reducing odor problems;
- 2) No distillation of solvent is needed (contaminants are adsorbed), reducing potential fire hazards and resulting in lower power consumption;
- 3) Detergents are not necessary (providing a potential long-term cost savings measure); and
- 4) Non-colorfast dyes are removed (producing no dye bleeding on other garments washed in the same load).

Original load-cycle times for all petroleum closed-loop machines were approximately 75 minutes/load, but newer machines now have reduced this time to 60 minutes/load¹². The quicker cycles use a larger blower capacity to shorten the cycle time. The District currently exempts this source type from permits.

¹⁰ Non-halogenated solvents will be subject to Regulation 8, Rule 17.

¹¹ A combustible liquid is defined as having a flash point at or above 100 degrees F.

¹² Typical Perc Cycle times are 45 minute/load.

i) DF-2000™

ExxonMobil launched DF-2000™ Fluid (DF-2000) in 1994 as an alternative to Stoddard and Perc. At present, it is the most widely used alternative solvent in the Bay Area. It is a synthetic mix of isoparaffins and cycloparaffins (naphthenes) consisting of C₁₁ to C₁₃ aliphatic hydrocarbons with a boiling point between 185 and 211 degrees C.

ii) EcoSolv®

Chevron Phillips Chemical Company LP produces a solvent called EcoSolv®, an isoparaffin mixture consisting of C₉ to C₁₃ aliphatic hydrocarbons with a boiling point between 181 and 209 degrees C.

iii) Shell Sol D60

Previously known as Shell Sol 140 HT (Shell 140), Shell Sol D60 is a high flash point hydrocarbon solvent with flash point @ 142°F. This solvent works well in closed-loop machines. It has a boiling point between 177 and 213 degrees C.

b. Volatile Methylated Siloxanes (decamethylcyclopentasiloxane)

This solvent was first manufactured by Dow-Corning in 1998, and is distributed by General Electric under the patented trade name GreenEarth™. It is a decamethylcyclopentasiloxane solvent mixture also known by the name of its chemical structure, D5. The flash point of this solvent is 171 degrees F and is higher than the flashpoints of the other hydrocarbon solvents. On the basis of flammability, D5 is also classified as a Class IIIA combustible liquid; the same designation given to the newer hydrocarbon solvents. This similarity to hydrocarbon solvents allows it to be used with hydrocarbon solvent dry cleaning equipment. Although some facilities have also used GreenEarth™ with (modified) equipment originally designed to use Perc, both the machine manufacturers and the solvent manufacturers do not recommend this option.

The machines using D5 solvent are closed-loop machines or third generation technology. The distinguishing equipment characteristics are: one unit, dry-to-dry, ventless, and does not exhaust to the atmosphere. The footprint or size of the equipment is analogous to a Perc Machine. D5 and water have a comparable specific gravity making solvent separation from water more complicated. The machine employs a specialized separator to achieve this task.

Original load-cycle times for all methylated siloxane solvent closed-loop machines were typically longer than hydrocarbon. Newer machine designs utilize a larger blower capacity to shorten the cycle time. However, cycle times are still longer than comparably designed hydrocarbon solvent cycles.

OHHEA evaluated the potential toxicity effects from exposure to decamethylcyclopentasiloxane, and issued a memorandum dated September 13, 2007. The results, while inconclusive, were not final and merits continued tracking from a regulatory perspective. The District currently characterizes the solvent by process as analogous to hydrocarbon dry cleaning and currently regulates this source type using an identical method.

c. Stoddard

Stoddard solvent, also known as Mineral Spirits or White Spirit, is a paraffin-based transparent liquid organic solvent commonly used in many industrial processes including but not limited to, degreasing, printing, painting and dry cleaning. Stoddard is a hydrotreated mixture of saturated aliphatic and alicyclic

C8 to C12 hydrocarbons with a maximum content of 25% C8 to C12 alkyl aromatic hydrocarbons. Stoddard has a flash point of 110 degrees F, contains benzene¹³ and smells somewhat like kerosene.

Historically, the use of highly flammable petroleum solvents led to many fires and explosions, which resulted in heavy regulation of petroleum solvent dry cleaning in the United States at the start of the 20th century. In 1924, a dry cleaner based in Atlanta, Georgia named W.J. Stoddard worked with the Mellon Research Institute to develop a less volatile dry cleaning petroleum solvent. The solvent grew in popularity but was eventually replaced by Perc. Yet during its use, the brand recognition became a permanent synonymous identifier for this type of solvent. Currently, only one facility in the Bay Area uses Stoddard solvent and the technology used is first generation transfer equipment.

d. PureDry®

PureDry® (PureDry) was developed and produced by Niran Technologies, Inc. as a replacement for Perc. It is an isoparaffin hydrocarbon blend of approximately 96 percent by weight aliphatic hydrocarbons (C9 to C12) combined with approximately 4 percent by weight of two halogenated compounds, a formulated perfluorocarbon (PFC) used to suppress the flashpoint of the hydrocarbons and hydrofluoroether (HFE) used to accelerate drying. The solvent has a flash point 350 degrees F, which is higher than most petroleum solvents and is accordingly classified as a class IIIB combustible liquid (flashpoint greater than 200 degrees F). PureDry can be used in most hydrocarbon machines with minor adjustments to temperature and cycle times.

e. Rynex™ (propylene glycol ether) Cleaning

Rynex™ is the trade name for one of the glycol ether technologies; it is also known as Rynex 3, since this is the third formulation of the solvent. Rynex™ is an biodegradable low volatile organic solvent (VOC) comprised primarily of aliphatic glycol ethers with a flash point higher than petroleum solvents and is classified as a class IIIB combustible liquid (flashpoint greater than 200 degrees F). Although glycol ethers are readily miscible with water making separation difficult in a typical distillation phase, Rynex 3 is lighter than water, and therefore floats on water after separation. Rynex 3 can therefore be used in most hydrocarbon machines with minor adjustments to temperature and cycle times. The differences in the physical properties between Perc and Rynex 3 make solvent conversions for Perc equipment difficult, and expensive. Although Rynex3 has been used in modified equipment originally designed to use Perc, both the machine manufacturers and the solvent manufacturers do not recommend this option. Several dry cleaners in the District currently use this solvent.

f. Carbon Dioxide Cleaning

Liquid carbon dioxide (CO₂) cleaning was originally examined by the USEPA through a contract with Los Alamos in 1994. Global Technologies and Raytheon Corporation presented a prototype at the Las Vegas Clean show in 1997. Over a dozen states have deployed CO₂ machines since 2000. Carbon dioxide dry cleaning technology uses pressurized CO₂ as a liquid solvent. These machines have a configuration similar to a Perc solvent machine, only with a larger footprint to accommodate the larger components needed to pressurize the drum. The drum is pressurized to a range between 700 and 800 pounds per square inch (PSI), which is about the same pressure used in a typical fire extinguisher.

The system is closed-loop with a cleaning chamber (drum), solvent storage unit, filtration, lint trap, and distillation. Jets inside the chamber circulate CO₂ and detergent through the clothes. The jets simulate spinning or agitation motion within the pressurized drum. The CO₂ solvent is eventually evacuated to prevent re-depositing of the dirt onto the garments. A typical cycle is 35 to 40 minutes. At the end of the cycle, the pressure is released and the CO₂ returns to a gaseous state. Cooling and drying of the garments occurs when the CO₂ evaporates, a nearly instantaneous process.

¹³ Benzene is a Toxic Air Contaminant.

The CO₂ used as a solvent in dry cleaning does not contribute to global warming, because it is already a by-product from an existing industrial operation, usually anhydrous ammonia operations (fertilizer production). Other commercial applications for liquid CO₂ have been to decaffeinate coffee beans and to carbonate beverages, such as soft drinks. The CO₂ can be stored in a bulk storage tank by the dry cleaner or the dry cleaner can use a service, which regularly changes out the empty tank as more CO₂ is needed.

Equipment costs for pressurized equipment, typically constructed of stainless steel, are high and hinder widespread adoption of this technology. Operational costs to optimally maintain the equipment needed to create the high pressure are more expensive than operational costs of a typical dry cleaner. Also, the cleaning technology is still evolving and, with only one manufacturer of CO₂ equipment in the United States, growth is expected to be slow. The District currently has two facilities using CO₂ machines.

g. Professional Wet Cleaning

Professional wet cleaning relies on water, detergent, conditioners and degreasers to clean clothing and textiles. Traditionally deployed by industry as a supplement to PERC dry cleaning, less than a dozen facilities in the Bay Area exclusively use wet cleaning. The wet cleaning process uses specific computer controlled equipment (washer, dryer) and specialized finishing equipment called tensioning equipment. Garments are washed in a carefully controlled environment and dried to a specific moisture level, via computer, to prevent shrinkage. The wet garments are hung and finished with the tensioning equipment. Any shrinkage that has occurred during the cleaning process is dealt with by stretching during the tensioning process, while the garment still retains residual moisture. This type of equipment has been available since 1991 and is generally less expensive than the equipment used by any of the other solvent alternatives.

h. Green Jet

The Green Jet machine also employs computer control similar to professional wet cleaning to clean and dry garments, but Green Jet cleaning is completed in a single unit. Garments are dehumidified to reduce surface tension, which allows the kinetic motion of the drum and pulsed air jets to remove non-soluble dust and soil. A lint chamber collects the dislodged grime while a specific amount of water-based cleaner (usually less than a pint) is jet injected, re-hydrating the fabric. The drum agitation combined with the felt pads located along the ribs and drum cylinder absorb the soluble soil. Once the wash cycle concludes, a characteristic drying and cool-down phase follow to complete the cycle.

8. Emerging Technologies

There are four emerging technologies that are anticipated to be marketed to the dry cleaning industry within the next few years. These technologies are: 1) Hydroclene Fluids, 2) Impress™; 3) Solvair™, and 4) Cold Water Cleaning Systems.

a. Hydroclene Fluids

Hydroclene is a clear liquid that represents a mixture of iso-, normal-, and cyclo-paraffins. The solvent has a flash point of 145 degrees F and a boiling point of 187 degrees C. Caled Chemical is the company developing this formulation, which is manufactured by Shell Chemical.

b. Impress™ Solvent

Impress™ is a biodegradable dry cleaning solvent that is another glycol-ether-based formulation. The solvent, aliphatic propylene glycol ethers, has a flash point of 190 degrees F and carries the same Combustible Liquid Class IIIA designation as most hydrocarbon solvents. Impress™, a VOC, can be used

in most hydrocarbon machines with minor adjustments to temperature and cycle times. Lyondell Chemical Company is the company developing this formulation.

c. Solvair™ Dry Cleaning System

Solvair™ is a new hybrid dry cleaning technology that uses dipropylene glycol normal butyl ether (DPNB) and CO₂. DPNB is not a new solvent; it is a VOC and has been widely used in consumer products for over 20 years. The Solvair™ design exploits the low volatility of DPNB in a pressurized system and uses liquid CO₂ to extract the DPNB without using heat. Once extracted, the garments dry almost instantaneously, by depressurizing the equipment back to normal (~14.7 PSI). This technology is being developed by R.R. Street.

d. Cold Water Cleaning Systems

Cold water cleaning systems utilize typical wet cleaning transfer equipment (washer and dryer) and temperature specific biodegradable detergents to wash and dry all fabrics. Chilled water (36 to 39 degrees F) is used by the washer to prevent and minimize potential fabric shrinkage and may reduce the amount tensioning needing to be done at the end of each drying cycle. The manufacturers of cold water cleaning systems are Suntech Company, Ltd. and By-For The Cleaners, Inc.

III. PROPOSED AMENDMENTS

A. Regulation 8, Rule 27

The District originally adopted Rule 8-27, for Synthetic Solvent Dry Cleaning Operations as an ozone control measure in 1980. Later, however, the District adopted new rules to incorporate new regulatory standards adopted at the federal and state levels (e.g., 1993 Perc NESHAP and ATCM). The District created a new rule, Rule 11-16, to identify and establish new solvent standards and control requirements. Once adopted by the District's Board, Rule 11-16 replaced Regulation 8, Rule 27, in 1994. Rule 8-27 was retained as part of the District's regulations for SIP considerations; however, it is now proper to remove this obsolete rule. Staff recommends deleting this rule as a 'housekeeping' measure.

B. Regulation 8, Rule 17

The proposed amendments to Rule 8-17 are intended primarily to update the equipment standards, control requirements and solvent definitions in the existing rule. This District regulation is currently applicable to petroleum solvents only. Although most of the newer solvent formulations are petroleum based, some are not. The newer alternative technologies currently available include a number of non-halogenated POC and NPOC solvents that need to be formally recognized and incorporated into the solvent definition used by this rule. To reflect the expanded applicability of the rule, the title of Rule 8-17 should be updated from "Petroleum Solvent Dry Cleaning Operations" to "Non-halogenated Dry Cleaning Operations." Staff recommends updating the solvent applicability and incorporating the new equipment standards into the current rule.

1. Operational Requirements

The proposed changes specify additional operational requirements for facilities using non-halogenated solvent. These proposed requirements are more stringent than the District's current rule and are summarized below:

- All new machines must be closed-loop.
- Existing transfer machines will be allowed to continue to operate, but can only be replaced by a closed-loop machine.
- All facilities must keep records for exemption or permit compliance.
- All facilities must report annually or as required.
- All facilities must register new equipment.
- All facilities must register ownership change (Transfer of Ownership).

Additionally, there have been advances in alternative technologies since the last amendment in 1990 that need to be identified and codified into the rule. Staff therefore recommends incorporating these new standards as requirements into the current rule.

2. Prohibitions

One of the proposed amendments prohibits the highly emissive operational practice of transferring materials from the drum mid-cycle from a closed-loop machine to a separate dryer. Additionally, four obsolete equipment types are being prohibited: new transfer equipment, vented machines, drying cabinets and dip tanks. Currently, one facility within the District operates a transfer machine, which will be allowed to continue to operate (but may only be replaced by a closed-loop machine).. There are no examples of the other types of equipment in operation within the District. Finally, to prevent reintroduction of toxic and potentially toxic compounds, and to parallel the proposed amendments to Rule 11-16,

halogenated solvents such as Perc or TCE are prohibited in spotting solution formulations. Staff recommends incorporating these prohibitions into the current rule.

3. District requirements

The District retains the regulatory authority to adopt requirements that are more stringent than state or federal specifications. These control and/or abatement mandates can be exercised in a variety of methods, such as by pollutant, process, equipment type, or even on a case by case basis. The adoption of stricter standards assures implicit compliance with all associated statutes. Often these “standards” are associated with recommended guidelines such as BACT. The District Board of Directors and/or Executive Officer reserve the right to grant the final authorization of these standards.

a) Existing Standards

All Rule 8-17 standards are currently more stringent than state or federal provisions.

The District has received delegation from the USEPA for regulation of petroleum dry cleaning equipment. The only federal standard that exists for petroleum dry cleaners is the NSPS standard¹⁴. Since there are no sources within the District that qualify as a major source as defined by this standard, the District is in compliance with all NSPS major source requirements by default. The NSPS definition of a major source uses more than 4700 gallons of petroleum solvent/year and also has a dryer drum capacity greater than 84 pounds (38 kg). The Districts standards apply to all petroleum dry cleaning equipment using less than 4700 gallons of solvent/year.

The Federal Clean Air Act defines a major source as emitting 10 tons/year of any single HAP, or 25 tons/year of any combination of HAPs or 25 tons/year of VOC.¹⁵ Currently, there are no petroleum dry cleaning sources within the District that exceed these emission levels to qualify as a major source.

There are no other existing federal standards for alternative solvent dry cleaning.

There are currently no state standards for petroleum or alternative solvent dry cleaning.

b) Proposed Standards

All proposed Rule 8-17 standards are currently more stringent than State or Federal provisions.

The current proposal is to add provisions to Rule 8-17 that continue the District's established practice of setting requirements that are more stringent than state or federal provisions. These new requirements will reflect the current level of technology, reasonable and acceptable improvements to emission control standards and improved recordkeeping and reporting requirements.

i) Expansion of the definition of solvent

Alternative solvents have existed prior to the mainstream usage of Perc, but with the phase out of Perc mandated by CARB's new Perc ATCM, newer solvents are being introduced every year. The current proposal adds to the definition of solvent to capture these newer products. Additionally, staff recommends revising the Petroleum Dry Cleaning Operations rule to extend its definition and title to all Non-halogenated Solvent Dry Cleaning Operations.

¹⁴ New Source Performance Standards.

¹⁵ Section 112(a)(1) Clean Air Act.

ii) Additional definitions

Definitions have been added to parallel the definitions of Rule 11-16, where the description or process is similar. Other definitions define the new equipment types or further clarify previous definitions. Appendix A has a more detailed summary of the proposed changes.

iii) Additional standards

The existing standards have been updated to better organize and define operational parameters. New standards have been added for closed-loop machines. Standards have also been added to parallel the controls of Rule 11-16, where the description or process is similar. A Prohibited Equipment/Operations standard has been added to prevent reintroduction of archaic equipment types and to ban practices that may cause unnecessary or excessive pollution. A halogenated spotting solution prohibition has been added and is further discussed for Rule 11-16 in part III.D.5.b)i) on page 27 of this document. Purchase of halogenated spotting solution will be prohibited starting on July 1, 2009, however, use of halogenated spotting solution will not be prohibited until July 1, 2010, to provide a one year period for facilities to exhaust existing inventories. Appendix A has a more detailed summary of the proposed changes.

iv) Additional administrative requirements

Additional requirements have been proposed to further define the information required by the District, to keep contact and permit information concurrent. A registration requirement is also added. Appendix A has a more detailed summary of the proposed changes.

v) Recordkeeping requirements

An updated, more definitive recordkeeping requirement has been added. The details parallel Rule 11-16 requirements for determining net solvent usage for permitted sources. Appendix A has a more detailed summary of the proposed changes.

4. Specific Rule Changes

The proposed changes to Rule 8-17 are listed by section in Appendix A.

C. Regulation 2, Rule 1, Section 120

The existing permit exemption level is for 700 gallons of petroleum solvent/year per facility. The proposed amendment to Regulation 2-1-120 would extend the exemption to all alternative solvents subject to Rule 8-17; lower the qualification level for the exemption from 700 gallons/year to 200 gallons/year, and add a new requirement that facilities register their exempt equipment. All of the proposed changes are more stringent than current state or federal regulations. Staff recommends incorporating these changes into the current rule.

1. Operational requirements

Alternative solvent technology has progressed from first generation transfer equipment to more efficient third generation closed-loop controls. Correspondingly, these machines now use less solvent and have lower emissions. Lowering the exemption level would track these technological improvements. The proposal is to lower the gross solvent usage exemption qualification levels for a facility, currently set at 700 gallons/year, down to 200 gallons/year. Facilities that use 200 gallons per year or more must obtain a permit to operate from the District. All facilities using less than 200 gallon/year would remain exempt from permit requirements, but would need to register their equipment with the District.

2. Registration

As a baseline determination tool, registration requirements for exempt dry cleaning facilities would assist in providing a complete picture to determine the location, number of facilities, machine characteristics, and types of solvent used in the Bay Area. Registration would recover the costs of inspecting these facilities.

3. Basis

In 2004, The District surveyed 250 alternative solvent dry cleaning facilities to determine typical usage over a one year period. The data gathered from the questionnaires revealed very different operating practices for different sizes of machines, even from the same manufacturer. Net solvent usage, solvent recovery data, and mileage¹⁶ numbers varied widely. Gross solvent usage provided a fairly consistent dimension of measurement. Figure III – C1 shows that only 13 facilities, *i.e.*, 5% of all alternative solvent facilities, had gross solvent usage over 200 gallons/year. The information collected by the questionnaire provided compelling evidence that lowering the exemption level was reasonable and would not present an unacceptable burden for alternative solvent facilities.

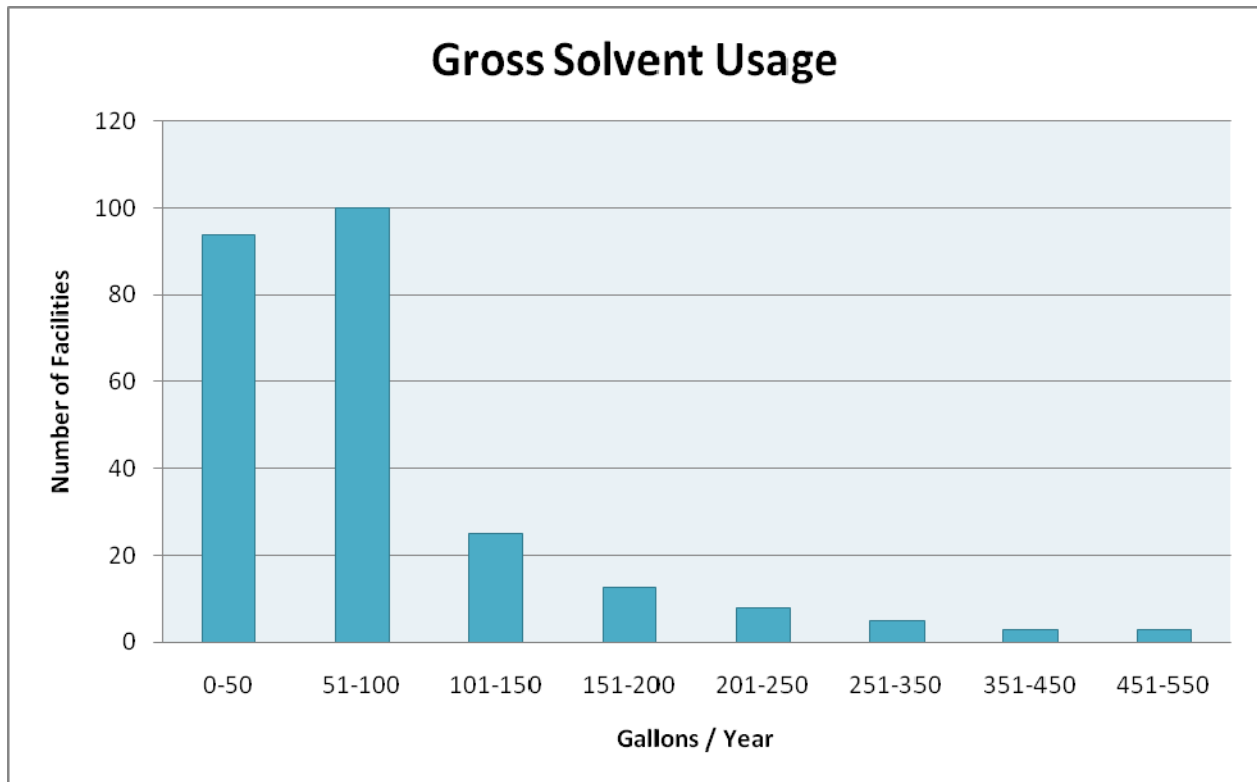


Figure III – C1 Alternative Solvent Annual Usage

¹⁶ The efficiency of solvent use at a facility (pounds of materials cleaned per gallon of solvent).

D. Regulation 11, Rule 16

The proposed amendments to Rule 11-16 are intended to primarily adopt the new requirements of the Perc ATCM into the existing rule. This District regulation is currently applicable to both Perc and synthetic solvents, whereas the ATCM is specific to Perc only. Simply adopting the ATCM by reference would therefore relax the Districts' current standard for all of the existing and potential non-Perc synthetic solvents currently covered by Rule 11-16. Staff recommends amending the current rule to incorporate the new Perc ATCM requirements. Staff also recommends, however, adopting additional requirements that are more stringent than the ATCM. The amended NESHAP, amended ATCM and the proposed rule amendments are compared in Table 5¹⁷.

1. Operational Requirements

The ATCM specifies additional operational requirements for facilities using Perc solvent. These requirements are more stringent than the District's current rule and are summarized below:

- Facility must report make, model, serial number, and age of machine.
- Annual leak checks with a leak detector that gives a quantitative result.
- Facility must have the following spare gaskets (loading door, still, lint trap, button trap, and water separator) on premises.
- Facility must have a spare lint filter.
- Button and lint traps must be cleaned and inspected on a daily basis.
- Shorter times allowed for repair (up to 7 days in rare cases).
- 5 years of recordkeeping.
- Trained operator must be on site while dry cleaning equipment is in operation.
- The original record for the completion of the environmental certification for each trained operator must be retained during the employment of that person and a copy must be retained up to 2 years beyond separation of employment at the facility.

For the District to demonstrate equivalence, these ATCM standards must be added. Staff therefore recommends incorporating these requirements into the current rule.

2. Equipment Prohibitions

The ATCM prohibits new Perc solvent equipment, effective January 1, 2008. The District is currently enforcing this provision and is in compliance with this ATCM mandate. No permits for new Perc solvent equipment have been issued on or after January 1, 2008. Additionally, three obsolete equipment types are being prohibited: external water repelling operations¹⁸, drying cabinets and dip tanks. There are no sources of these types operating within the District. Adopting these explicit prohibitions will demonstrate equivalence with the ATCM equipment prohibition standards and prevent a reintroduction of this more emissive type of technology. Staff recommends incorporating these prohibitions into the current rule.

3. Equipment Phase-out Provisions

The ATCM requirements mandate a Perc equipment phase out starting on July 1, 2010. These requirements are more stringent than the District's current rule and are summarized below:

- Eliminates the use of existing Perc machines at co-residential facilities by July 1, 2010;
- All converted machines must cease operation on July 1, 2010.¹⁹
- Requires that machines that are 15 years or older be removed from service effective July 1, 2010;
- Requires that all Perc solvent equipment prohibited by January 1, 2023.

¹⁷ Table 5 is on p. 38.

¹⁸Water repelling operations must be completed inside closed-loop equipment.

¹⁹ converted to close loop, these once vented machines use an external water-cooled "chiller" for primary control.

Once the equipment has been retired on/after July 2010, then the equipment may not be retained after that date for continued water repelling operations. The equipment date of manufacture is used to determine the “age” of the equipment. If the date cannot be determined, it must be retired on July 1, 2010. Staff recommends incorporating these Perc solvent ATCM phase out provisions into the current rule.

4. Perc manufacturers, Distributors and Reseller Requirements

The ATCM requirements identify recordkeeping requirements for Perc manufacturers, distributors and resellers who do business in the state of California. They are required to report and keep records of all Perc solvent transactions and submit them to regulatory agencies on an as needed basis. Staff recommends incorporating these new requirements into the current rule.

5. District requirements

The District retains the regulatory authority to adopt requirements that are more stringent than state or federal specifications. These control and/or abatement mandates can be exercised in a variety of methods, such as by pollutant, process, equipment type, or even on a case by case basis. The adoption of stricter standards assures implicit compliance with all associated statutes. Often these “standards” are associated with recommended guidelines such as BACT, or TBACT. The District Board of Directors and/or the Executive Officer reserve the right to grant the final authorization of these standards.

a) Existing Standards

Rule 11-16 currently has three standards that are more stringent than state or federal provisions.

i) Ventilation

The District requires ventilation to promote dispersion of fugitive solvent vapors and reduce overall solvent exposure to nearby receptors working and living near a dry cleaning facility. Additional ventilation is primarily used as a risk mitigating measure, lowering the potential cancer risk to acceptable levels.

ii) Secondary Control

The process for dry cleaning is very similar in most mechanical and design applications, regardless of solvent type, making the type of emission controls almost universal. The BACT standard for synthetic solvent equipment has been a 4th generation secondary control machine. The TBACT NSR standard for synthetic solvent equipment also requires secondary control. Carbon adsorption is currently the most effective form of secondary control available for dry cleaning technology. The solvent emissions concentrations from the drum at the end of a typical Perc solvent cleaning cycle have been measured at less than 300 ppmv, an effective implementation of this equipment standard.

iii) Synthetic Solvent Applicability

The strict operational, maintenance, recordkeeping and reporting requirements of Rule 11-16 specific to Perc solvent equipment have extended applicability to all synthetic solvent equipment.²⁰ All synthetic solvents are then subject to the same standards as Perc solvent such as secondary control for all new sources, regular leak checks, proper equipment maintenance, solvent inventory, maintenance records, hazardous waste manifests and annual reporting. This extension of BACT standards to all synthetic solvents is one of the most comprehensive and effective regulatory methods for this solvent type. This extended applicability maintains a uniform standard for compliance determination, and simplified regulatory requirements for all synthetic solvent equipment.

²⁰ unless the section or subsection is specifically worded for Perc solvent.

b) Proposed Standards

The current proposal is to add three standards to Rule 11-16 that are more stringent than state or federal provisions.

i) Spotting Solution Formulation Prohibition

Spotting solutions are commonly used by dry cleaning facilities to remove localized spots or stains on fabrics such as drapes, clothing or other textiles, and may be applied before or after the dry cleaning process. Although newer effective spotting solution formulations exist that are soy or water based, most formulations contain mixtures of more volatile VOCs; however, halogenated solvents, such as Perc, trichloroethylene (TCE) or methylene chloride are still being used, either as a component or in pure form, because of their effective solvent properties.

CARB is in the initial stages of modifying the California Consumer Products Regulation to ban halogenated solvents to prevent product manufacturers from reintroducing these toxic compounds as they reformulate their consumer spotting products to comply with lower VOC requirements. Correspondingly, the elimination of halogenated solvents at the professional level should be done as a preventative measure, to remove the possibility of continued exposure of these solvents to nearby workers and residents beyond the Perc solvent equipment phase out timetable. Additionally, the ban on halogenated spotting solutions would eliminate this type of hazardous waste from the effluent streams of both dry and wet cleaning systems.

The proposal is to prohibit the purchase of halogenated solvent spotting formulations, effective July 1, 2009, and the use of such formulations effective July 1, 2010. The prohibitions would prevent the reintroduction of these compounds into professional products and homebrew formulations. The one year gap between the purchase and use prohibitions would allow facilities time to exhaust existing inventories. Staff recommends incorporating this new requirement into the current rule.

ii) Reporting Requirement

The Perc ATCM requires all Perc equipment older than 15 years from date of manufacture to cease operation starting July 1, 2010. The proposal is to require all Perc facilities to declare their intent by December 31, 2009 either to install alternative solvent equipment or to retire their existing equipment. The intent is to obtain advanced confirmation for scheduling a final inspection by enforcement staff or to encourage submission of all applicable paperwork for the alternative solvent equipment in advance of the Perc phase out deadline. The reporting requirement will facilitate an orderly transition in advance of the initial Perc solvent equipment prohibition date. Staff recommends incorporating this new requirement into the current rule.

iii) ATCM Extension

The proposal is to apply the new ATCM requirements—which apply only to Perc—to all synthetic solvents covered by Rule 11-16. Thus all synthetic solvent equipment subject to Rule 11-16 would be required to comply with the stricter operational, maintenance, recordkeeping and reporting requirements mandated for Perc solvent. These stricter standards would not only reduce potential exposure to a specific toxic air contaminant (Perc), but would become generalized to all potential toxic air contaminants. All synthetic solvent equipment would be required to the following:

- Facility must have the following spare gaskets (loading door, still, lint trap, button trap, and water separator) on premises.
- Facility must have a spare lint filter.
- Button and lint traps must be cleaned and inspected on a daily basis.
- Shorter times allowed for repair (up to 7 days in rare cases).
- 5 years of recordkeeping.

Synthetic solvent equipment would not be subject to Perc operator certification or Perc solvent phase out requirements. Staff recommends incorporating these equipment and operational standards for all synthetic solvents into the current rule.

6. Specific Rule Changes

The proposed changes to Rule 11-16 are listed by section in Appendix B. Comparison of the proposed rule with the amended NESHAP and amended ATCM are summarized in Table 5.

IV. EMISSIONS and EMISSIONS REDUCTIONS

The District’s preliminary 2008 emissions inventory indicates that the reported net solvent emissions from Perc dry cleaning sources is 0.405 tpd NPOC and 0.14 tpd from POC hydrocarbon equipment. Additionally, 2008 emissions from spotting formulations show 0.11 tpd from halogenated (primarily VOC) spotting formulations. The changes outlined in this proposal will reduce emissions for all District dry cleaning equipment.

A. Regulation 11, Rule 16: Perc ATCM equipment phase-out

The new ATCM requirements will completely eliminate Perc as a solvent option by 2023. As the existing permitted Perc solvent equipment reaches 15 years of age, it must be removed from service. Assuming the facilities transition to hydrocarbon solvent closed-loop equipment, Figure IV-A1 shows the projected changes to the emissions profile. 2009 starts with 0.14 tpd for the 330 existing Hydrocarbon machines and moves up to 0.36 tpd once all facilities convert. Of course this is the expected worst case. Some facilities may choose to convert to non-toxic biodegradable alternatives such as wet cleaning. Perc solvent starts at 0.405 tpd for the existing 500 facilities and falls to zero over 15 years.

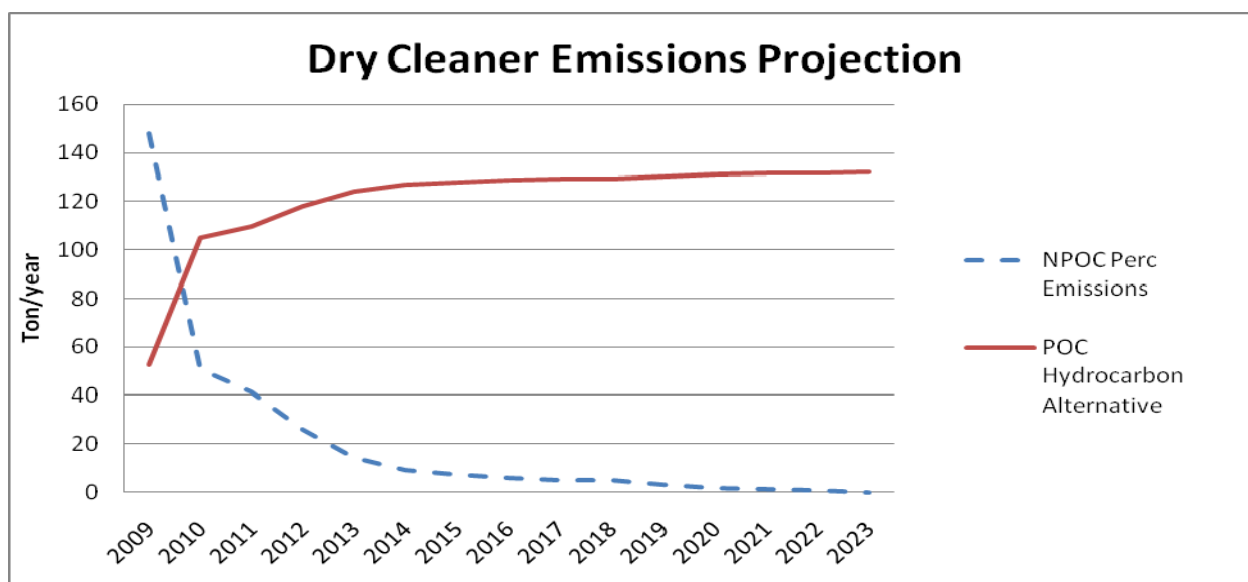


Figure IV – A1 Perc Solvent Equipment Emissions Projection

B. Regulation 8, Rule 17: Closed-Loop Equipment Requirement

The most probable scenario of Perc solvent phase-out of Regulation 11, Rule 16 is the adoption of hydrocarbon solvent equipment which currently comprises 85 percent of the existing alternative solvent equipment located within the District. Figure IV-B1 shows the worst case scenario, that all of the 500 facilities will choose the existing rule standard (transfer technology) over the proposed closed-loop standard and the projected impacts to the associated emissions profile. Requiring closed-loop equipment would generate a potential reduction in emissions in 2010 of 1.82 tpd VOC which would steadily rise to a savings of 4 tpd VOC by 2023. This would be an 87% reduction in potential VOC emissions.

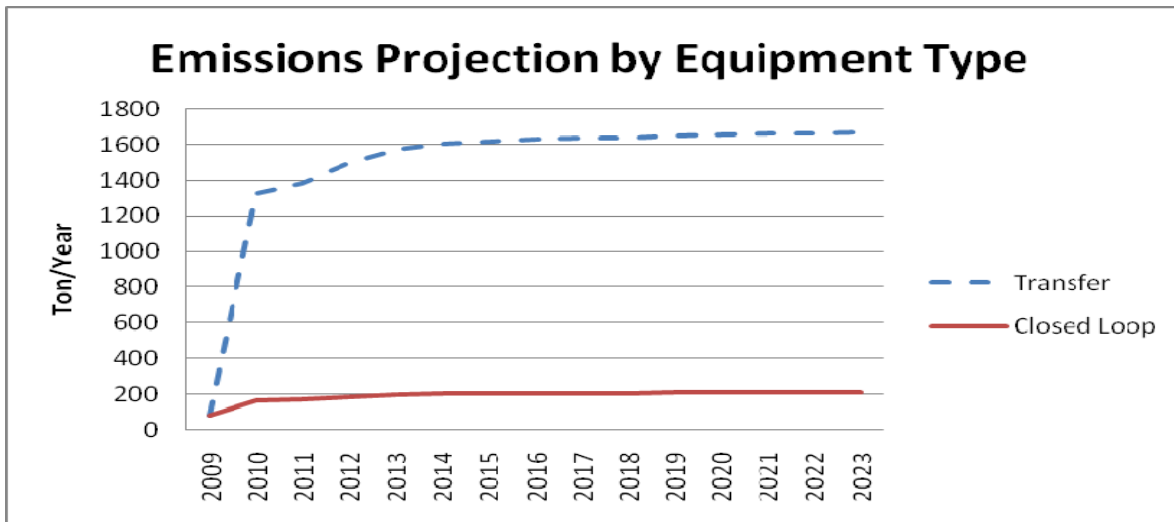


Figure IV-B1 Projected Emission Reductions by Proposed Closed-Loop Technology Standard

C. Regulation 11, Rule 16 & Regulation 8, Rule 17 Halogenated Spotting Solution Prohibition

Despite the differences in solvent chemistry and dry cleaning technologies, all dry cleaning facilities utilize spotting agents to remove undesirable textile stains. Perc and TCE are carcinogens, classified as HAPs, TACs and comprise the most widely used solvents in spotting formulations. Both compounds have been found in effluent stream test samples of both dry and wet cleaning equipment.²¹ Perc and TCE are listed as hazardous compounds and if present in a waste stream would then be classified as hazardous waste inheriting all of the attendant disposal requirements. The emissions produced by these chemicals could easily be reduced by using effective alternative formulations that already exist. Figure IV-C1 shows a significant 66% VOC emission reduction using alternative spotting solutions, even if facilities use 20% more quantity of the alternative formulations.

The largest contributor to the halogenated spotting solutions is TCE with 0.011 tpd, with Perc emitting only 0.0005 tpd. However the new formulations, a mix of the highest VOC alternatives comprised of 50% Hydrocarbon and 50 % low-VOC soy, emit a combined 0.025 tpd. The data for these emission projections came from California suppliers and cleaners participating in spotting agent testing.²²

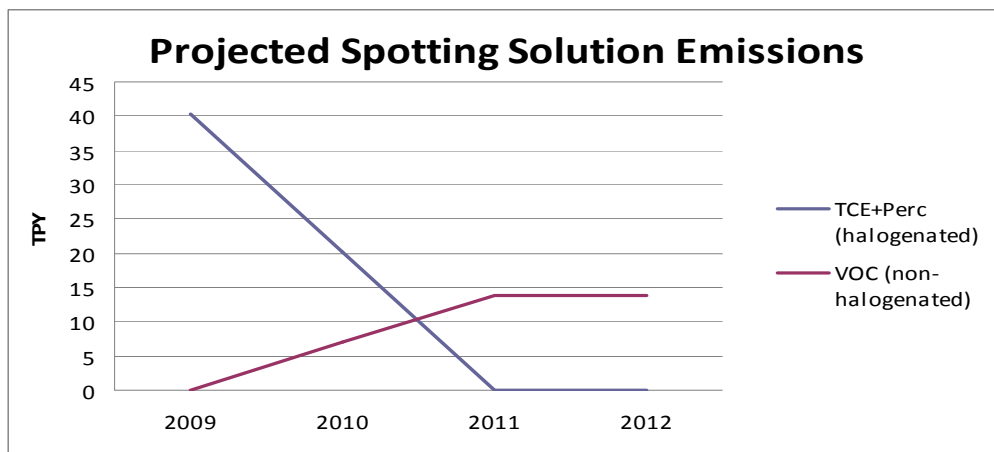


Figure IV-C1 Emission reductions achieved using non-halogenated spotting solutions

²¹ IRTA, 2007.

²² IRTA, 2007.

D. Regulation 8, Rule 27, VOC

There are no expected emission reductions from the deletion of this rule.

E. Regulation 2, Rule 1, Section 120, VOC

There are no quantifiable emission reductions from the lowering of the exemption limit from 700 gallon/year to 200 gallon/year, however a lower exemption level is an incentive to emit less.

V. ECONOMIC IMPACTS

Staff conducted a cost and cost effectiveness analysis based on information developed by CARB staff. A socioeconomic analysis was also performed along with an incremental costs effectiveness analysis and an analysis of the potential impacts to the District. The results for ease of reference have been broken down by rule where necessary.

A. Costs and Cost Effectiveness

1. Regulation 2, Rule 1, Section 120

There is no control equipment costs associated with the registration of equipment. The current proposal would require registration for all facilities that use hydrocarbon based solvent equipment. The annual registration fee is \$125/year with \$180 initially charged for new registrants. All currently registered facilities will automatically transition to the \$125/year fee. Equipment using more than 200 gallons/year of solvent must obtain a District permit in accordance with Regulation 8, Rule 17. The fees are necessary to recover District costs associated with compliance inspections and administrative tasks.

2. Regulation 8, Rule 17

The use of closed-loop control technology for exempt petroleum equipment has been voluntary by the dry cleaning industry for over the last 10 years, largely as a environmentally correct incentive to switch out from perc solvent. The current proposal formally requires that all new machines be closed-loop, which would prevent the re-introduction of the older, more emissive transfer equipment should the price of the solvent, the equipment or the process make transfer machines attractive again in the future. Current annual permit renewal fees are based on drum capacity and equipment less than 100 lb. is \$ 217 and +\$ 4.50/ lb. is added if the drum capacity is over 100 lb.

3. Regulation 8, Rule 27

There is no control equipment costs associated with the deletion of this rule.

4. Regulation 11, Rule 16, NPOC

CARB staff performed a Technical Assessment Report (CARB 2006) as supporting documentation for the cost analysis to estimate the implementation of the ATCM amendment and included portions from the report in the preliminary Initial Statement of Reason document. CARB estimated the costs to be approximately 1.06 million dollars/year statewide over 15 years. Table 4 shows typical costs in 2005 dollars.

Table 4. Machine Cost Comparison for a Typical Dry Cleaning Facility¹

Machine Solvent Type	Installation Cost	Typical Machine Cost	Machine Cost Difference Perc (dry-to-dry) to Alternative (dry-to-dry)
Perc-Secondary Control (40-lb capacity)	\$2,500 – \$3,000	\$43,900	-
Perc-Secondary Control (40-lb capacity) w/chiller or cooling Tower	\$3,000 - \$5,000		
Hydrocarbon (50-lb capacity)	\$5,000 - \$6,000	\$61,000	+\$17,100
GreenEarth™ (50-lb capacity)	\$5,000 - \$6,000	\$63,000	+\$ 19,100
Water-Based Cleaning Green Jet (45-lb capacity)	\$2,000 - \$2,500	\$30,000	-\$13,900
Professional Wet Cleaning (washer/dryer/tensioning equip.)			
Soft Mount (25-35 lb capacity)		\$37,800-\$40,500	-\$6,100 to -\$3,400
Hard Mount (30-40 lb capacity)		\$35,700-\$39,600	-\$8,200 to -\$4,300
CO2 (60-lb capacity)	\$50,000	\$140,000	+\$96,100

1. Table VII-2 from CARB 2006.

Approximately 50 facilities have already converted from Perc to petroleum solvent since 2004. Currently, 98% of the facilities that have switched from Perc have switched to hydrocarbon based solvents. If we assume that the remaining Perc facilities also convert to hydrocarbon and do not choose other alternatives such as wet cleaning or CO2, and if we use the costs that are listed in Table 4 (in 2005 dollars), the annual costs for the remaining Perc facilities to convert are conservatively estimated to be \$2,217,000/year. At the end of the 15 years, per CARB's ATCM requirements, Perc solvent use in dry cleaning equipment would be completely eliminated in the Bay Area. All further cost analysis and justification basis is available from CARB via its website or written request and contained in the Final Statement of Reasons for Rulemaking, Public Hearing to Consider Adoption of the Amendments to the Control Measure for Perchloroethylene Dry Cleaning Operations and Adoption of Requirements for Manufacturers and Distributors of Perchloroethylene.

Current annual permit renewal fees are based on drum capacity and equipment less than 100 lb. is typically \$ 217 and +\$ 4.50/ lb. is added if the drum capacity is over 100 lb.

B. Socioeconomic Impacts

Section 40728.5 of the California Health and Safety Code requires state air districts to assess the socioeconomic impacts of the adoption, amendment or repeal of a rule if the rule is one that “will significantly affect air quality or emissions limitations.” Bay Area Economics of Emeryville, California has prepared a socioeconomic analysis of the proposed amendments to Regulation 2, Rule 1; Regulation 8, Rule 17; Regulation 8, Rule 27; and Regulation 11, Rule 16. District staff has reviewed and accepted this analysis. The analysis concludes that the affected facilities impacted by the proposed changes should not result in significant impacts, either through economic dislocation or loss of job.

C. Incremental Cost Effectiveness

The District is required to conduct an incremental cost effectiveness analysis prior to the adoption of any Best Available Retrofit Control Technology (BARCT) rule or feasible measure pursuant to Health and Safety Code section 40920.6(a)(3). Under this section, the District must (1) identify one or more potential control options which achieves the emission reduction objectives for the proposed rule; (2) determine the cost effectiveness of each option; and (3) calculate the incremental cost effectiveness of each option. For the purpose of this analysis, cost effectiveness means “the cost, in dollars, of the potential control option

divided by emission reduction potential, in tons, of the potential control option.” Health and Safety Code section 40920.6(a)(2). To determine the incremental cost effectiveness, then, the District must “calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.” Health & Safety Code section 40920.6(a)(3).

1. Closed-Loop Standard for Hydrocarbon Solvent (Regulation 8, Rule 17)

The baseline assumption is that all 500 Perc machines in the District that will need to be removed from service under the new ATCM will be replaced with non-halogenated (hydrocarbon) solvent transfer machines. The mean emissions are projected to be 2.75 ton/day. The estimated annual costs of the transfer equipment (capital & installation) are \$ 17,674 and the annual operation and maintenance (O&M) costs \$ 10,634 with a total annualized cost for 500 machines are estimated to be \$ 14,154,000²³. The control system option proposed in the proposed amendments to Rule 8-17 is closed-loop equipment. This newer type of equipment achieves an overall control efficiency of 87.5%. The closed-loop equipment costs \$ 66,500 (capital and installation), amortized over 10 years at 10% interest with an annual operation and maintenance (O&M) costs estimated to be \$ 27,911²⁴. Installation of this technology would achieve a potential emissions reduction of 2.41 ton/day of VOC at a cost of approximately \$ 13,955,500 District-wide.

Incremental cost effectiveness can be calculated according to the following formula.

$$ICE = \frac{C_{option} - C_{proposal}}{ER_{option} - ER_{proposal}}$$

Where:

- ICE** = incremental cost effectiveness,
- C_{option}** = annualized cost of the control option,
- C_{proposal}** = annualized cost of the proposal,
- ER_{option}** = potential emissions reduction that would be achieved by the control option,
- ER_{proposal}** = potential annual emissions reductions that would be achieved by the proposal.

$$ICE = \frac{\$14,154,000 - \$13,955,500}{(0 \text{ tpd} - 2.41 \text{ tpd}) \times 365 \text{ days}}$$

$$= \$ 225.66 \text{ per ton savings}$$

Thus, adoption of closed-loop technology would result in an annual monetary *savings* of \$ 225.66 per ton of VOC reduced, making closed-loop equipment more cost effective control option than transfer equipment. Each hydrocarbon solvent dry cleaning facility would save \$ 397 per machine/year by operating closed-loop equipment over transfer equipment. Staff recommends closed-loop technology as the new effective control standard for all new hydrocarbon dry cleaning equipment.

²³CARB 2006, Table VII-5.

²⁴CARB, 2006.

2. Spotting solutions (Regulation 11, Rule 16 & Regulation 8, Rule 17)

For this analysis, the District assumes, based on data from dry cleaning facilities and suppliers, that 95% of facilities currently use halogenated spotting solutions for all of their spot cleaning. Based on that same data, the District estimates that approximately 40.2 ton/year of TCE and 0.2 ton/year Perc are emitted for a combined total of 0.11 ton/day in the Bay Area from spotting solution formulations.²⁵ This assumes 8 gallon/year of halogenated spotting formulation usage per dry cleaner, at \$ 46 per gallon costing a total of \$ 305,440 per year by dry cleaners located within the District.

The proposal is to prohibit the use of halogenated spotting formulations in favor of other lower emitting hydrocarbon alternative solvents such as acetates and low-VOC soy formulations that are currently available on the market. Assuming a total of 10 gallon/yr of alternative spotting formulation used for each of the 830 facilities with 5 gallon/year hydrocarbon alternative at \$ 40 per gallon and 5 gallon/year low-VOC soy at \$ 25 per gallon produces a total projected cost of \$ 269,750. This proposed change would produce a 66% emission reduction of VOC (0.07 ton) per day.

Incremental cost effectiveness can be calculated according to the following formula.

$$ICE = \frac{C_{option} - C_{proposal}}{ER_{option} - ER_{proposal}}$$

Where:

ICE	=	incremental cost effectiveness,
C_{option}	=	annualized cost of the control option,
C_{proposal}	=	annualized cost of the proposal,
ER_{option}	=	potential emissions reduction that would be achieved by the control option,
ER_{proposal}	=	potential annual emissions reductions that would be achieved by the proposal.

$$ICE = \frac{\$305,440 - \$269,750}{(0 \text{ tpd} - 0.07 \text{ tpd}) \times 365 \text{ days}}$$

$$= \$1346.79 \text{ per ton savings}$$

The adoption of the non-halogenated spotting formulations with a 20% greater usage than the halogenated solvent produces a net savings of \$ 43 per facility and results in an overall collective cost savings of \$ 1346.79 per ton of VOC reduced using the alternative formulations, making it economical in terms of savings and effective in VOC reduction. Staff recommends non-halogenated spotting formulation technology as the new cost effective control measure for the reduction of VOC emissions.

3. Rule Deletion (Regulation 8, Rule 27)

There are no incremental costs associated with this rule deletion.

4. Change of Exemption Limit (Regulation 2, Rule 1, Section 120)

There are no incremental costs associated with lowering the permit exemption limit.

²⁵ IRTA, 2007.

D. District Impacts

The proposed amendments are expected have an impact on District resources. The potential impacts of each proposal are discussed separately below.

1. Regulation 8, Rule 27

No sources will be affected by this rule deletion.

2. Regulation 8, Rule 17

The majority of sources are expected to remain exempt. Applications for the administration, evaluation and compliance determination of new equipment permits are expected over the next 15 years, with no additional resources required. Costs are expected to be recovered by permit fees.

3. Regulation 11, Rule 16

The majority of permitted halogenated solvent dry cleaning sources are expected to be retired over the next 15 years. There are costs to administer, monitor and provide data to CARB for all sources regulated by this rule. During routine inspections, District staff will inspect each source to verify that it is retired in compliance with the ATCM. No additional resources will be required; costs are expected to be covered by permit fees.

4. Regulation 2, Rule 1, Section 120

The proposed registration requirement will require facilities using less than 200 gallons/year of alternative solvents (facilities using any amount of Perc or solvents containing more than 1% by weight of any halogenated compound do not qualify) to register with the District all alternative solvent dry cleaning equipment. This requirement is expected to make these facilities easier to track and evaluate for compliance. The initial and annual registration fees are expected to cover the administrative, inspection and other costs associated with these sources. Fee collection will be automated and integrated into the District's current billing structure.

Proposed changes to the permit exemption limit would require facilities using between 200 gallons/year and 700 gallons/year of alternative solvents to obtain District permits for all alternative solvent dry cleaning equipment. (Facilities using more than 700 gallons/year would be required to obtain permits too, as they are already required to do under the current rule.) Administrative, inspection, and other costs are expected to be recovered by permit fees.

VI. REGULATORY IMPACTS

Section 40727.2 of the Health and Safety Code requires an air district, in adopting, amending, or repealing an air district regulation, to identify existing federal and that air district's air pollution control requirements that apply to the same equipment or source type affected by the proposed change in air district rules. The air district must also identify any state or other air pollution control requirements and guidelines that apply to the same equipment or source type and of which the air district has been informed pursuant to the statute. The air district must then note any difference between these existing requirements and the requirements imposed by the proposed change.

A. Regulation 8, Rule 27

All requirements addressed by this rule transferred to Regulation 11, Rule 16 since 1994. Accordingly, there are now no federal, state or other applicable requirements to address relative to the retirement of this rule.

B. Regulation 2, Rule 1, Section 120

The District has not identified any federal, state or other requirements that pertain to alternative solvent dry cleaning exemptions within the District.

C. Regulation 8, Rule 17

The District has not identified any federal, state or other requirements that pertain to permitting alternative solvent dry cleaning equipment within the District.

D. Regulation 11, Rule 16

One federal and two state requirements apply solely to Regulation 11, Rule 16:

- 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories: Subpart M, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, Environmental Protection Agency, July 11, 2008.
- 17 CCR, Section 93109, Airborne Toxic Control Measure (ATCM) for Perchloroethylene Emissions from Dry Cleaning Operations, California Air Resources Board, January 25, 2007.
- 17 CCR, Section 93110, Environmental Training Program for Perchloroethylene Dry Cleaning Operations, California Air Resources Board, May 4, 1994 (Environmental Training Requirements).

The proposed amendments are in compliance with all applicable provisions of the NESHAP and the ATCM. A comparison of each provision of the proposed rule as it compares with the ATCM and NESHAP is contained in Table 5, demonstrating the effective stringency of the proposal.

The Environmental Training Requirements have been already addressed in the existing rule since 1994 and have not changed. Thus, Rule 11-16 is, and remains, in complete compliance with all of this statute's applicable provisions.

Table 5. Comparison of Proposed Regulation 11, Rule 16 with amended ATCM and amended NESHAP

BAAQMD Reg. 11-16, Section (s)	ATCM, 17CCR Section 93109 Subsection (s)	NESHAP, Part 63, Subpart M Section (s)	Comments
11-16-101	(a)	320 (a)	District is more explicit because the scope includes Perc and all synthetic solvents. NESHAP & ATCM only regulate Perc Solvent.
11-16-102	(b)&(h)(4)	322 (a) (3)	ATCM: Water Repellant Treatment & Dip Tank Operations are prohibited. NESHAP: allows transfer operations of Perc saturated garments, if enclosed and ventilation operates continuously. The ATCM is more stringent. District is more comprehensive because the applicability is for all synthetic solvent. The District is incorporating the ATCM provisions and will be just as stringent for Perc solvent.
11-16-103	--	--	Exemption & applicability Rule 8-17 for alternative solvents.
11-16-104	(e) & (g)	322 (o) (4)	Relocation exemption- ATCM: no new facilities after 1/1/08 eliminates relocated facilities. NESHAP: no new Co-Residential Facilities or Relocations after 12/1/05. NESHAP is more stringent for Co-Residential Facilities on or after 12/01/05. The District has no facilities that qualify for this provision. The ATCM, once enacted is more stringent because it applies to all facilities. This provision will be deleted to comply with the ATCM.
11-16-105	h (1)	322 (a) (3)	Drying Cabinets - ATCM: prohibited 1/1/08. NESHAP: allows transfer of garments if the source is enclosed. The ATCM provision is more stringent. This provision will be deleted to comply with the ATCM.
11-16-106	e (2)	322 (a) (3)	Pass Through Clean Room Garment Cleaner deletion. Obsolete Definition. No Sources of this type exist.
11-16-108	g	--	ATCM clarification of District approval to mean APCO approval and section (g), which allows relocations at District's discretion, is not applicable. The District is more stringent because relocations for Perc equipment are no longer allowed.
11-16-241	e (2)	322 (a) (3)	Pass Through Clean Room Garment Cleaner deletion. Obsolete Definition. No Sources of this type exist.
11-16-242	--	--	Perceptible Vapor Leak - obsolete definition deleted.
11-16-266	--	--	Water Repellant Operation deleted, replaced by section 279 to be specific as ATCM. No NESHAP equivalent.
11-16-267	d(1)	--	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-268	d(3)	321	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-269	d(16)	321	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-270	d(26)	321	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-271	d(27)	321	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-272	d(37)	321	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.

BAAQMD Reg. 11-16, Section (s)	ATCM, 17CCR Section 93109 Subsection (s)	NESHAP, Part 63, Subpart M Section (s)	Comments
11-16-273	d(41)	321	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-274	d(44)	--	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-275	d(45)	321	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-276	d(33)	--	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-277	d(34)	--	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-278	--	--	District definition. No equivalent definition in NESHAP or ATCM.
11-16-279	d(56)	--	ATCM incorporation, More specific than NESHAP, District definition equivalent to ATCM.
11-16-301.1.4	e (2)	322	Requirements for existing non-residential facilities: Deletion: Obsolete provision. No sources of this type exist within District. District more stringent than NESHAP or ATCM, applicability for other solvents.
11-16-301.2.1	f	322	Requirements for New Non-residential facilities: Deletion: Obsolete provision for other synthetic solvents. District provision as stringent as ATCM, more stringent than NESHAP for Perc solvent.
11-16-302	f	322 (b)	Requirements for new non-residential facilities: secondary control required; more stringent than ATCM and NESHAP. District provision as stringent as ATCM for Perc solvent.
11-16-302.2	f	322 (a) & (b)	Requirements for new non-residential facilities: Perc Equipment phase out provision added; required by ATCM; more stringent than NESHAP phase out provision. District is more stringent with applicable standards for synthetic solvent other than Perc.
11-16-303	h (3)	322 (a) & (b)	Requirements for Co-residential facilities: is more stringent than ATCM and NESHAP by requiring secondary controls, vapor barrier rooms and ventilation systems. Requirements for Co-residential facilities: more stringent than NESHAP which phases out 12/21/20; ATCM 7/1/10 Perc solvent phase-out provisions added, District as stringent as ATCM provisions for Perc. District provisions more stringent because they apply to all synthetic solvents.
11-16-303.2	e (2)	322	Requirements for Co-residential facilities: Deletion: No sources of this type exist within District: Obsolete provision.
11-16-303.3.1	--	--	Requirements for Co-residential facilities: Deletion: Obsolete Perc Phase-in provision.
11-16-304.1 – 11-16-304.8	--	--	Prohibited equipment/Operations: format change.
11-16-304.3	g (1)	322 (b)	Prohibited equipment/Operations: Language update.
11-16-304.9	e (1)		Prohibited equipment/Operations: ATCM: No new facilities after adoption date. More stringent than NESHAP. District more stringent than ATCM, this provision applicable to all synthetic solvents.

BAAQMD Reg. 11-16, Section (s)	ATCM, 17CCR Section 93109 Subsection (s)	NESHAP, Part 63, Subpart M Section (s)	Comments
11-16-304.10	h (1)	322	Prohibited equipment/Operations: ATCM: Dip Tanks, Drying Cabinets are leftover equipment types that are from transfer operations. We have no permitted sources of this type. This is a more stringent requirement than the NESHAP. District more stringent than ATCM, this provision applicable to all synthetic solvents.
11-16-304.11	--	--	Prohibited equipment/Operations: Halogenated Spotting Solution ban prevents facilities from purchasing formulations containing halogenated chemicals, such as Perc, from being used, effective 7/1/09. Halogenated spotting solutions use prohibited 7/1/10. More stringent than ATCM or NESHAP. District Provision.
11-16-304.12	--	--	Prohibited equipment/Operations: Halogenated Spotting Solution ban prevents facilities using formulations containing halogenated chemicals, such as Perc, from being used, effective 7/1/09. More stringent than ATCM or NESHAP. District Provision.
11-16-304.13	h (3)	322 (o) (4)	Prohibited equipment/Operations: ATCM: Prohibits Co-Residential Facilities after 7/1/10. More stringent than NESHAP. District as stringent as ATCM.
11-16-304.14	f	322 (a) (3)	Prohibited equipment/Operations: ATCM: Prohibits Converted machines after 7/1/10. More stringent than NESHAP. District as stringent as ATCM.
11-16-304.15	h (4)	322 (a) (3)	Prohibited equipment/Operations: ATCM: Prohibits equipment 15 yrs or older after 7/1/10. More stringent than NESHAP. District as stringent as ATCM.
11-16-304.16	h (5)	322 (o) (4)	Prohibited equipment/Operations: ATCM: Prohibits all Perc equipment after 1/1/23. More stringent than NESHAP, District as stringent as ATCM.
11-16-305.2	--	--	Specifications for Required Equipment: Language update.
11-16-305.5	h (1)	322 (b)	Specifications for Required Equipment: ATCM: Deletion: Drying Cabinet & Pass-through Garment Obsolete Equipment Specification. More stringent than NESHAP. District provision more stringent than ATCM because it is applicable to all synthetic solvents.
11-16-306		322	Deleted. Obsolete vented equipment standard.
11-16-307	--	322	Ventilation Requirements: language update. District is more stringent than NESHAP or ATCM requirements.
11-16-308	l	322 (b)	Water-Repellant Treatment: Requirements Update required by ATCM. More stringent than NESHAP. District provision equivalent to ATCM provisions for Perc solvent. District provisions more stringent because of the applicability for all synthetic solvents.
11-16-309.1.4.b	--	--	Deletion of obsolete equipment standards.
11-16-309.2.5	i (2) (E)	322 (j) & (k) & (m)	Good Operating Practices: ATCM Leak Check requirement changes. ATCM more stringent than NESHAP. District as stringent as ATCM for Perc solvent, but more stringent because the applicability is extended for all synthetic solvents.

BAAQMD Reg. 11-16, Section (s)	ATCM, 17CCR Section 93109 Subsection (s)	NESHAP, Part 63, Subpart M Section (s)	Comments
11-16-309.6	i (2) (A)(6)	--	Good Operating Practices: Site Gasket Requirement. ATCM more stringent than NESHAP. District as stringent as ATCM for Perc solvent, but more stringent because the applicability is extended for all synthetic solvents.
11-16-309.7	i (2) (A)(7)	--	Good Operating Practices: Spare Lint Filter Requirement. ATCM more stringent than NESHAP. District as stringent as ATCM for Perc solvent, but more stringent because the applicability is extended for all synthetic solvents.
11-16-310.1	i (1) (B)	--	Environmental Training Requirement. ATCM more stringent than NESHAP. District as stringent as ATCM.
11-16-310.3	i (2) (D)	--	Environmental Training Requirement: Replacement Operator. ATCM more stringent than NESHAP. District as stringent as ATCM.
11-16-401.4	k	324	Reporting Requirements: Initial Notification - ATCM requires collection of serial numbers of machines. ATCM more stringent than NESHAP. District as stringent as ATCM.
11-16-401.6	--	--	Reporting Requirements: Initial Notification - Existing Facility provision deleted – obsolete provision.
11-16-402	e	324	Reporting Requirements: District is more stringent than ATCM and NESHAP, requiring waste data used, to calculate emissions.
11-16-403	j	320	Reporting Requirements: Compliance Schedule: Facilities are subject to NESHAP and ATCM until adoption of rule. District will be as stringent ATCM and more stringent than NESHAP.
11-16-404	--	--	Conversion Reporting requirement. District is more stringent than NESHAP or ATCM.
11-16-501	j (1)	324	Recordkeeping: at least as stringent as ATCM and more stringent than NESHAP. Several additional records useful for emissions & compliance determination.
11-16-501.2	--	--	Language update: unit clarification (gallons)
11-16-503	93109.2(a)&(b)	--	Perc Manufacturer Reporting Requirements. District as stringent as ATCM. District more stringent than NESHAP.
11-16-504	93109.2(a)&(b)	--	Perc Distributor Reporting Requirements. District as stringent as ATCM. District more stringent than NESHAP.
11-16-605	h	323	2-5 Language update: HRSA
Table 11-16-1			Phase out Schedule in table form. Equivalent to ATCM phase out provision requirements. District more stringent than NESHAP.

VII. ENVIRONMENTAL IMPACTS

A. CEQA

Environmental Audit, Inc. has prepared on behalf of the District an initial study of the proposed amendments under the California Environmental Quality Act (CEQA). The initial study concludes that there are no potential significant adverse environmental impacts associated with the proposed amendments. A negative declaration is proposed for approval by the District Board of Directors.

B. Greenhouse Gas Emissions

In June, 2005, the District's Board of Directors adopted a resolution recognizing the link between global climate change and localized air pollution impacts. Climate change, or global warming, is the process whereby emissions of anthropogenic pollutants, together with other naturally-occurring gases, absorb infrared radiation in the atmosphere, leading to increases in the overall average global temperature.

While carbon dioxide (CO₂) is the largest contributor to global warming, methane, halogenated carbon compounds, nitrous oxide, and other species also contribute to climate change. Gases in the atmosphere can contribute to the greenhouse effect both directly and indirectly. Direct effects occur when the gas itself is a greenhouse gas (GHG). While there is relative agreement on how to account for these direct effects of GHG emissions, accounting for indirect effects is more problematic. Indirect effects occur when chemical transformations of the original compound produce other GHGs, when a gas influences the atmospheric lifetimes of methane, and/or when a gas affects atmospheric processes that alter the radiative balance of the earth (e.g., affect cloud formation).

VOCs have some direct global warming effects; however, they may be considered greenhouse gases primarily due to their indirect effects. VOCs react chemically in the atmosphere to increase concentrations of ozone and may prolong the life of methane. The magnitude of the indirect effect of VOCs is poorly quantified and depends on local air quality. Global warming not only exacerbates ozone formation, but ozone formation exacerbates global warming. Consequently, reducing VOCs to make progress towards meeting California air quality standards for ozone will help reduce global warming.

District rules typically allow a facility to reduce VOC emissions to the atmosphere through the use of air pollution abatement equipment and/or the use of low-VOC products. Abatement equipment may be refrigerated condensers and/or carbon adsorption. Historically, low-VOC products, refrigerated condensers and/or carbon adsorption all have been used successfully. Because active air pollution abatement equipment (burning fuel, such as a catalytic oxidizer) is not expected to be used to meet specific VOC limits in the proposed rule amendments, no increase in GHG emissions are expected.

VIII. RULE DEVELOPMENT / PUBLIC PROCESS

This report and the recent associated Public Workshop held on December 22, 2008 constitute the most recent step in the District's rule development process for revising the rules regulating dry cleaning operations in the District. During the Public Workshop, we received comments from the public on the proposed amendments to Rule 11-16, Rule 8-17, and Rule 2-1. During the workshop, staff responded to questions about information presented in the workshop report. Based on the input received during the workshop and the associated public comment period, staff made one change to the proposal prior to preparing the final proposed amendments for consideration at a public hearing before the District's Board of Directors February 18th, 2009 Board Meeting.

In both the proposed Rule 11-16 and Rule 8-17, District staff has added a halogenated spotting solution purchase deadline of July 1, 2009 and halogenated spotting solution use deadline of July 1, 2010. The prior proposal did not include any purchase ban and had banned the use of halogenated spotting solutions effective immediately (date of adoption). It is expected that the two-tier purchase and use bans will provide suppliers and facilities with time to exhaust any existing inventory of halogenated spotting solutions before the bans on such solutions take effect.

Two written comments were received:

- Lawrence Lim, Chairman, KCDC, Ko-Am Cleaner Association of America, Millbrae, CA
- Marti Russell, Stockton, CA

Their written comments and related information from the Public Workshop are contained in Appendix E.

As part of the public process that involves all parties affected by the proposed changes to the dry cleaning regulations, staff made extensive contacts with various industry representatives. For informational purposes, some of the information used in this report came from the following methods:

A. Outreach Efforts

CARB's amendments to the Perc ATCM, upon which many of the proposed amendments to District Rule 11-16 are based, took effect and became state law more than one year ago, on December 27, 2007. In May 2008, the District sent out a preliminary informational request to inform Perc solvent facilities about the new state dry cleaning standards and to request specific equipment information as required by the ATCM. At that time, the District also informed the public that the District was considering making changes to District dry cleaning regulations in light of the state and federal changes. Furthermore, the District participated in an EPA grant to provide supplemental grants over a two year period to showcase wet cleaning/CO₂ as viable alternatives. In addition, District staff attended several USEPA workshops and discussed with EPA staff and others various expected federal regulatory changes relating to dry cleaning. Finally, the District has remained active in its efforts to engage and reach out to Bay Area dry cleaners, as described in more detail below.

B. Public Involvement

District staff attended several public meetings as part of CARB's outreach efforts relating to the amended ATCM. Three of these meetings occurred in the evening in an effort to reach out to the Korean community²⁶ in the Bay Area.

²⁶ Northern California Korean Dry Cleaners and Launderers

C. Industry Involvement

District staff maintains industry involvement by keeping an on-going workgroup that comprises dry cleaning operators, cleaners associations, machine manufacturers, solvent manufacturers and environmental groups. The workgroup meets on a quarterly basis. Most of these workgroup members also actively participated in the development of the ATCM amendment process. They also have previewed earlier drafts of the proposals for the dry cleaning rule update and provided technical information.

D. Government Agency Involvement

District staff participated in the development of the CARB's Perc dry cleaning ATCM, and CARB Regulatory Committees via conference calls to review, revise and address issues regarding the Perc ATCM standards from a permitting and enforcement perspective. Additionally, District staff provided input into the 2006 Perc NESHAP revision.

E. Dry Cleaning Surveys

District Staff conducted a survey in 2004 to obtain information on operational practices from alternative solvent facilities. The questionnaire and cover letter was translated into Chinese, Korean, and Spanish to assist owners and/or operators who spoke English as a second language. The questionnaire was sent to all non-halogenated solvent facilities listed in the District's records. The return rate of the survey was 100 % of the exempted facilities. Enforcement staff provided key assistance to alternative solvent facilities which facilitated such a high return rate.

IX. CONCLUSION

This report describes proposed revisions to District regulations regarding dry cleaning operations. These revisions incorporate recent amendments to state and federal dry cleaning regulations and update District regulations to cover the many new dry cleaning solvents and technologies that have emerged since the regulations were last amended. Staff recommends the adoption of the regulations as amended in order to continue to protect the public health.

References:

CARB, 1991, Initial Statement of Reasons for Rulemaking, Staff Report/Executive Summary, and Part B, Proposed Identification of Perchloroethylene as a Toxic Air Contaminant, California Air Resources Board, August 1991.

CARB, 1993, Airborne Toxics Control Measure (ATCM) for Emissions of Perchloroethylene from Dry Cleaning Operations, California Air Resources Board, October 14, 1993.

CARB, 2006, California Dry Cleaning Industry Technical Assessment Report, California Air Resources Board, February 2006.

CARB, 2007, Airborne Toxics Control Measure (ATCM) for Emissions of Perchloroethylene from Dry Cleaning Operations, California Air Resources Board, January 25, 2007.

CARB, 2008, Initial Statement of Reasons for Proposed Amendments to the California Consumer Productions Regulation, Spot Removers, California Air Resources Board, May 9, 2008.

IRTA, 2005, Evaluation of New and Emerging Technologies for Textile Cleaning, Institute for Research and Technical Assistance, August 2005.

IRTA, 2007, Spotting Chemicals: Alternatives to Perchloroethylene and Trichloroethylene in the Textile Cleaning Industry, Institute for Research and Technical Assistance, January 2007.

USEPA, 1984, Standards of Performance for New Stationary Sources, Subpart JJJ-Standards of Performance for Petroleum Dry Cleaners, United States Environmental Protection Agency (U.S. EPA), September 21, 1984.

USEPA, 1993, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, Subpart M, United States Environmental Protection Agency (U.S. EPA), 40 CFR Part 63, September 22, 1993.

USEPA, 1996, Air Quality; Revision to Definition of Volatile Organic Compounds—Exclusion of Perchloroethylene, United States Environmental Protection Agency (U.S. EPA), 40 CFR Part 51, March 08, 1996.

USEPA, 2006, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, Subpart M, United States Environmental Protection Agency (U.S. EPA), 40 CFR Part 63, July 27, 2006.

USEPA, 2008, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, Subpart M, United States Environmental Protection Agency (U.S. EPA), 40 CFR Part 63, July 11, 2008.

Appendix A

Regulation 8, Rule 17 Rule Change Summary

Section	Comments
GENERAL	
101	Updating definition from petroleum to non-halogenated solvent.
102	Applicability definition added.
110	Clarification of solvents subject to other regulations (Rule 11-16)
111	Small user exemption deleted.
112	Exemption added for existing transfer equipment.
DEFINITIONS	
201	The Petroleum solvent definition updated and expanded to include all known alternative solvents
202	The facility definition was update to be equivalent to Rule 11-16.
204	The cartridge filter definition was updated to reflect the improvements in technology.
205	The dry weight definition was updated.
206	The Solvent Liquid leak definition was updated.
207	The Solvent vapor leak definition was updated.
208	The Transfer Cart definition was updated.
209	Adsorptive Filtration System definition added for new technology for hydrocarbon machines.
210	Closed-loop machine definition added to define new technology.
211	Co-located definition added to clarify type of facility.
212	Condenser definition added to define emissions control technology.
213	Cool down definition added to clarify the part of the cycle where solvent recovery occurs.
214	Control device definition added to define the function of the condenser and adsorber devices.
215	Date of compliance definition added to clarify regulatory deadlines.
216	District definition added to demonstrate equivalence with other regulation.
217	Dip tank operations definition added to explain a specific process.
218	Drum definition added to clarify machine operation.
219	Dry cleaning definition added to clarify a specific process.
220	Dry Cleaning equipment definition added to specify equipment category.
221	Dry cleaning system definition added to specify groups of components within equipment.
222	Drying cabinet definition added to specify equipment type.
223	Drying tumbler or dryer definition added to clarify a specific component.
224	Dry-to-dry unit definition added to specify equipment type.
225	Equivalent primary control system definition added to clarify equivalent processes.
226	Existing facility definition added to clarify facility category.
227	Existing machine definition added to clarify equipment category.
228	Gallons of solvent used definition added to clarify solvent usage.
229	Materials definition added to clarify a specific component processed.
230	Muck cooker definition added to identify a process type.
231	New facility definition added to clarify facility category.
232	New machine definition added to clarify equipment type.
233	Pounds of material cleaned per load definition added to clarify measurement.
234	Primary control system definition added to specify solvent recovery technology.
235	Refrigerated condenser definition added to specify type of emissions control technology.
236	Registration definition added to define a type of regulatory process.
237	Relocated machine definition added to clarify facility category.
238	Separator facility definition added to identify a process type.
239	Spotting solution definition added to identify a supplementary cleaning process.
240	Still definition added to identify a solvent recovery process.
241	Transfer machine definition added to clarify equipment type.
242	Transfer of ownership definition added to clarify equipment proprietorship.

243	Used machine definition added to identify an equipment type.
244	Vented machine definition added to clarify equipment type.
245	Waste from dry cleaning operations definition added to identify a component of a solvent recovery process.
246	Wastewater evaporator definition added to identify a specific equipment type.
247	Water-repelling operations definition added to clarify a specific textile treatment process.
STANDARDS	
301	Operating requirements expanded: Leak check requirements expanded to require a checklist to be completed on a monthly basis, noting leaks with 14 days from the recording date to repair them. Closed container requirements are more specifically worded. Solvent minimization requirement formalized. Hazardous waste requirement updated. Existing Transfer Operations modified to minimize transfer times. Solvent recovery and wastewater evaporation requirements added.
302	Emission Control Requirements standard updated to be specific for existing transfer machines
303	Solvent filtration requirement deleted.
304	Equipment requirements standard added to required closed-loop technology.
305	Prohibited equipment/operations standard added. New/replacement transfer/vented prohibited. Dip tank/drying cabinets prohibited. Transfer of wet clothes from/to closed-loop equipment prohibited. Halogenated solvent spotting prohibited with a one year prior purchase ban.
306	Specifications for closed-loop machines standard added. Exhausting to atmosphere during operation not allowed. Primary control system must reduce mass of solvent during a specific part of the operational cycle and must be as efficient as a refrigerated condenser. Primary control system cannot require additional water if it comes into direct physical contact with the solvent.
307	Water-repelling operations standard added to require this process with closed-loop equipment.
ADMINISTRATIVE REQUIREMENTS	
403	Initial notification requirement added to specify minimum written informational requirements for equipment evaluation.
404	Registration requirement added for exempt equipment types.
405	Annual reporting requirement added to specify types of data used for the yearly facility reporting.
406	Transfer of ownership requirement added to keep contact information current.
MONITORING AND RECORDS	
501	Small user record requirement deleted.
502	Solvent filtration records requirement deleted.
503	Recordkeeping requirement added: 2 yrs, date, lbs cleaned/load solvent consumption, solvent waste, monthly leak checks, and the equipment operations manual must be kept on-site.

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Appendix B

Regulation 11, Rule 16 Rule Change Summary

Section	Comments
GENERAL	
101	Updating description to be consistent with Perc ATCM.
102	Updating applicability to be consistent with Perc ATCM.
103	Updating exemption for other solvents to reference proposed non-halogenated solvent of Rule 8-17.
104	Deleted relocated facility limited exemption.
105	Deleted dry cabinets limited exemption.
106	Deleted pass through clean room garment cleaners limited exemption.
108	Perc ATCM applicability added to demonstrate compliance with ATCM provisions delegated to the District.
DEFINITIONS	
205	Closed-loop definition updated to include secondary control machines.
206	Co-commercial definition was updated for clarification purposes.
207	Co- residential definition was updated and simplified for clarification purposes.
214	Dip tank definition was updated to clarify the specific components of the process.
218	Dry cleaning equipment definition was updated to include other equipment types.
219	Dry cleaning system definition was updated to include "any" process.
220	Drying cabinet definition updated for better process definition.
221	Drying cycle definition was updated to clarify equivalent processes on specific equipment types.
223	Drying tumbler definition was deleted.
224	Dry-to-dry unit definition updated to clarify a specific process.
225	Environmental training program definition was updated to better clarify the California Code of Regulations reference.
229	Facility definition was updated to refine the definition.
233	Gallons of solvent used definition was updated definition syntax
234	Halogenated-hydrocarbon detector definition was updated to refer to "Perc".
235	Major facility definition was updated with minor syntax changes.
239	New facility definition was updated to remove the relocated facility reference.
241	Pass through clean room garment cleaner definition deleted.
242	Perceptible vapor leak definition deleted.
243	Perchloroethylene definition was updated to better clarify the California Code of Regulations reference.
246	Primary control system definition was updated to define the specific process used for emission control.
249	Refrigerated Condenser definition was updated to better identify a specific process.
250	Relocated facility definition updated to "relocated dry cleaning equipment" with an updated definition.
251	Secondary control system definition was updated to identify a specific process.
253	Self-service dry cleaning machine definition updated to specify equipment type.
256	Synthetic solvent or solvent definition was updated to include reference to proposed Rule 8-17 changes.
257	Tetrachloroethylene definition updated to better clarify the California Code of Regulations reference.
259	Transfer machine definition was updated to be more specific to equipment.
262	Vapor leak definition updated to further clarify all synthetic solvent, rather than leaks specific to Perc solvent.
263	Vented machine definition updated to further define the exhaust process.
264	Waste from dry cleaning operations definition updated to reference section 309 required good operating practices.
265	Waste water evaporator definition changed to "Wastewater evaporator" and "atomizes" added to the definition.
266	Water repellent treatment definition completed.
267	Add-on secondary control machine definition added to clarify differences in secondary control systems. (ATCM)

268	Carbon adsorber definition added to specify solvent recovery technology.(ATCM)
269	Dry cleaning machine definition added to specify category of equipment types. (ATCM)
270	Integral secondary control system definition added to specify solvent recovery technology. (ATCM)
271	Secondary control system definition added to identify specific components of equipment used in solvent recovery.(ATCM)
272	Primary control machine definition added to identify a specific equipment type. (ATCM)
273	Recycled synthetic solvent definition added to identify a component of the solvent recovery process. (ATCM)
274	Remove from service definition added to clarify inoperable equipment types.(ATCM)
275	Residence definition added to specifically identify which households can be categorized as long term. (ATCM)
276	Solvent distributor definition added to identify a specific group referenced in the Perc ATCM section 93109.2.
277	Solvent manufacturer definition added to identify a specific group referenced in the Perc ATCM section 93109.2.
278	Spotting solution definition added to identify a specific solution used by the dry cleaning industry.
279	Water-repelling operations definition added to clarify a specific textile treatment process.
	STANDARDS
301	Final equipment requirements standards updated to remove the word final from the standard and deletes the references to equipment types now prohibited.
302	Equipment requirements, new non-residential facilities standard updated to include a reference to prohibited equipment in section 304 and an updated reference to Rule 2-5, Toxics NSR.
303	Final equipment requirements, co-residential facilities standard updated to remove the word final from the standard and references section 304 to prohibited equipment types.
304	Prohibited equipment/operations requirements standard updated the format of existing prohibitions and the Perc ATCM equipment prohibition timeline has been added. Halogenated Spotting solutions also prohibited with two dates, a 7/1/09 buy prohibition and a 7/1/10 use prohibition.
305	Specifications for required equipment standard updated to remove standards for updated equipment minor grammatical syntax updated.
306	Specifications for interim equipment and controls standard deleted.
307	Ventilation requirements standards updated to be consistent with definition syntax.
308	Water-repellent treatment and dip tank operations standard updated to remove equipment prohibited by Perc ATCM, such as Dip Tank operations. This standard has been renamed water repelling operations.
309	Required good operating practices standard updated to reference that the Perc ATCM standards shall apply to all synthetic solvents. Several CCR references format updated. The applicable standards for equipment types already prohibited are deleted. Grammatical syntax updated throughout standard to be consistent with definitions. Leak repair updated to be consistent with Perc ATCM. Spare gaskets and spare lint trap requirements added to be consistent with Perc ATCM.
310	Environmental training requirements standards updated to include the applicable reference to the appropriate CCR references. Additional requirements from the Perc ATCM added, such as operator must be present at all times equipment is in operation and the replacement operator certification must be completed within 15 days.
	ADMINISTRATIVE REQUIREMENTS
401	Initial notification requirement added to specify minimum written informational requirements for equipment evaluation. Serial number, dates of equipment manufacture and types of solvents used requirements added to conform to Perc ATCM.
402	Annual reporting requirement updated to include a reference to CCR for Perc ATCM. Format syntax also updated. Make, model, serial number, types of solvents used and date of manufacture requirements added.
403	Compliance schedule requirement updated to address a timeline imposed by the Perc ATCM phase out requirements.

404	Conversion from Perc to non-Perc requirement added to create a deadline for switching to an alternative dry cleaning method.
MONITORING AND RECORDS	
501	Recordkeeping requirement updated to include a reference to the CCR and the 5 year recordkeeping requirement. Solvent information must keep in gallon units. Minor grammar updates to be consistent with definition syntax.
502	Equipment certification/testing requirements updated to reflect minor CCR format change. Inclusion of the District Executive Officer in the approval of testing methods.
503	Requirements for solvent manufacturers added to comply with Perc ATCM.
504	Requirements for solvent distributors added to comply with Perc ATCM.
MANUAL OF PROCEDURES	
601	Determination of compliance – emissions section references updated.
604	Analysis of solvent content of water repellent solution and other liquid materials updated from repellent to repelling.
605	Determination of cancer risk updated by adding (HRSA)
Table	11-16-1 Perchloroethylene Compliance Schedule Table added

Appendix C

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Dry Cleaner Workshop, December 22, 2009



Specific Issues

Workshop participants were encouraged to bring up issues after the proposed rule changes were presented and are summarized below.

1) Questions about Permit fees versus Registration Fees.

*The easiest way is to look at annual fee differences is by example:
(assume that all equipment has 60 lb. drum capacity.)*

Example 1 is for a Permitted perc machine. (P)

Example 2 is for a Registered non-halogenated solvent machine. (R)

Example 3 is for a Permitted non-halogenated solvent machine. (P)

Example 4 is for a Permitted perc machine and a Registered non-halogenated solvent machine. (P&R)

Example 5 is for two Registered non-halogenated solvent machines. (2R)

Example 6 is for two Permitted non-halogenated solvent machines (2P).

Example 7 is for two Permitted perc machines. (2P)

Annual Renewal Fee Table (\$)

Perc	Alternative	Registration	Permit	AB2588	Toxics	Processing	Total
P			217	75	22	63	378
	R	125					125
	P		217			63	280
P	R	125	217	75	22	63	503
P	P		307		22		329
	2R	250					250
	2P		307			123	430
2P			307	75	22	123	528

2) Dry Cleaners have an inventory of halogenated spotting solution and need additional time to use up existing stock.

Although originally proposed as a date of adoption prohibition, this request was not unreasonable and Rule 11-16 and Rule 8-17 were amended to include a “buy prohibition” starting on 7/1/09, with a one year period to exhaust any existing inventory with a final “use prohibition” starting on 7/1/10.

3) The ARB has been approached by several dry cleaning organizations to change the effective date, can the District postpone the dry cleaner amendments until the ARB responds.

The ARB set the effective deadline of 12/27/07 and the District has already started enforcing applicable provisions. For example, no new perc equipment can apply and receive a permit. In the year since the new ATCM provisions became effective, the ARB hasn’t provided any indication of change or reconsideration of any effective dates. The District is obligated by state law to adopt the ATCM provisions.

4) What happens if my usage goes over the 200 gallon/year exemption limit?

The facility would no longer qualify for the exemption and would have to apply for a permit and pay permit fees, see table above.



Written Comments Received



Written comments were received on or before the January 5, 2009 12:00 PM deadline. They paralleled some of the comments brought up at the workshop. In order to prevent duplication, they are separated and summarized here.

They are paraphrased and summarized as follows:

- 1) A request for delay of the rulemaking process until CARB has responded to the KCAC (Ko-Am Cleaners Association of California) organization petition to delay the implementation of the ATCM. According to the organization, CARB confirmed that a response to their petition would be sent to them on or after January 26, 2009. The request is to suspend the District incorporation of the new ATCM requirements into Rule 11-16 until all issues with the ARB have been resolved.

ARB has responded and confirmed there is no delay in implementation of the ATCM and all issues have been resolved.

- 2) The workshop did not explain why a VOC reduction is necessary for dry cleaning equipment. Rule 8-17 does should not be changed until it can be shown to be reasonable and cost-effective from an air quality perspective.

The District is out of attainment for the Federal 8-hour zone standard and must continue to reduce the contributing pollutants conducive to ozone formation. VOCs contribute significantly to ozone formation and their reduction is necessary and an important step in the District's overall plan. The proposed changes would actually save non-halogenated solvent dry cleaners money, both because closed-loop equipment is less expensive than transfer equipment and because non-halogenated spotting solvents are less expensive than their halogenated counterparts. The District needs to monitor the use of all dry cleaning solvents in order to minimize emissions. Some new solvent formulations have toxicity issues (e.g., n-propyl bromide, decamethylcyclopentasiloxane).

- 3) There is no "compelling evidence that lowering the exemption was reasonable", no justification to lower the exemption level in Rule 2-1, Section 120. This section should not be modified unless it can be shown to be necessary and cost effective from an air quality perspective.

The proposal reduces the permit exemption threshold to an amount that is more equitable to operators of other source categories (which typically have much lower exemption thresholds) and provides a small financial incentive for dry cleaners to conserve solvent usage. The 700 gallon exemption threshold was originally adopted in 1983 as a small user consideration based on higher emitting transfer machine technology; typical transfer operations used thousands of gallons/year and only a few facilities were eligible for the small user exemption. Virtually all dry cleaners that use non-halogenated solvents operate closed loop machines and solvent usage for most operators is less than 200 gal/yr. The District considered revising the permit exemption level in 1993 when the Perc ATCM was adopted but decided to maintain it at 700 gallon/yr to provide a small financial incentive for dry cleaners to switch from Perc to non-halogenated solvents. More than 380 non-halogenated machines now operate within the District and the District has not recovered the cost of regulating them. Proposed revisions to Regulation 8-17 would implement registration fees for the sources exempt from permits. Equitable permit fees for larger sources and nominal registration fees for smaller sources are reasonable and is necessary for the District to recover regulatory costs.

- 4) BAAQMD should adopt a one/two year timeframe to allow the supply houses that service California to exhaust their inventories of halogenated spotting agents.

A one year time frame has been developed. In both the proposed Rule 11-16 and Rule 8-17, District staff added a halogenated spotting solution purchase deadline of July 1, 2009 and halogenated spotting solution use deadline of July 1, 2010. The prior proposal did not include any purchase ban and had banned the use of halogenated spotting solutions effective immediately (date of adoption). It is expected that the two-tier purchase and use bans will provide suppliers and facilities with time to exhaust any existing inventory of halogenated spotting solutions before the bans on such solutions take effect.

- 5) Have the July 1, 2010 date apply only to Distributers (who buy from the suppliers).

The District has modified the proposal to allow purchases of halogenated spotting agents until July 1, 2009 in order for supply houses and distributors to clear their inventories. The halogenated spotting solution prohibitions will apply to all dry cleaners, suppliers, distributors and any other person or entity. All purchases of halogenated spotting solutions are prohibited beginning July 1, 2009. All use of halogenated spotting solutions is prohibited beginning July 1, 2010. It is expected that the two-tier purchase and use bans will provide dry cleaners, suppliers and others with time to exhaust any existing inventory of halogenated spotting solutions before the bans on such solutions take effect.

End of Comments.



Ko-Am Cleaners Association of California

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December 30, 2009

Mark Nash
BAAQMD
939 Ellis St.
San Francisco CA 94109

Dear Mr. Nash:

I would like to take this opportunity to comment on behalf of the of the Ko-Am Cleaners Association of California on the proposed revisions to Regulation 11, Rule 16, Regulation 8, Rule 17 and Regulation 2, Rule 1 that were the subject of the December 22, 2008 workshop.

First, with respect to the proposed revisions to Regulation 11, Rule 16, the Ko-Am Cleaners Association of California has petitioned the California Air Resources Board for changes to Section 93109 of Title 17 California Code of Regulations. By mutual agreement, CARB has indicated that it will respond to this petition on or before January 26, 2009. Given that the proposed revisions to Regulation 11, Rule 16 are intended to achieve alignment with requirements of Section 93109 that may be revised in light of the petition, we request, at a minimum, that action by the BAAQMD be delayed until all issues related to the petition are completely resolved. Second, there is a question as to why there is any need for revisions to Regulation 11, Rule 16 in light of the existence of the state regulations set forth in Section 93109.

With respect to Regulation 8, Rule 17, the workshop materials contain no information regarding the need for (e.g. the VOC emission reductions) associated with the proposed revisions or any assessment of the cost impacts on dry cleaners. Regulation 8, Rule 17 should not be revised unless the revisions can be shown to be necessary and cost-effective from an air quality perspective. Similarly, with respect to the proposed revisions to Regulation 2, Rule 1, no air quality based justification has been provided for lowering the exemption level despite the claim that there is “...*compelling evidence that lowering the exemption level was reasonable...*” Again, Regulation 2, Rule 1 should not be modified unless it can be shown to be necessary and cost-effective from an air quality perspective.

Sincerely,

(signed)
Lawrence Lim
Chairman

From: mruss91977@aol.com
Sent: Monday, January 05, 2009 10:51 AM
To: Marc Nash
Subject: BAAQMD Regulation 11,Rule 16, proposed changes
Marc Nash:

In regard to the workshop/meeting held on December 22, 2008 in the BAAQMD Building on Ellis Street, San Francisco, CA:

To be fair to every party involved, I propose to BAAQMD the following:

1. BAAQMD adopt a one to two year time frame/period in which the Distributors, Allies, Supply Houses, etc. are to stop purchasing chemicals from any Manufacturer or any spotting agent's supply houses, that have the chemicals you wish to ban in the BAAQMD District.
((All the Supply Houses in California: WinkCo, S & B (which is funded by United Supply in LA), MBL, Workroom Supply all sell to cleaners in the BAAQMD region.))
2. Have the July 1, 2010 date apply to the Distributors; from buying these chemicals from Manufacturers. Given the high cost of buying chemicals, the Supply houses can then deplete their inventory stock, which will/can/would then dwindle down to the cleaners in the BAAQMD area.
3. Since the majority of chemicals are purchased primarily in gallon containers, and the cleaners need to use up their costly inventory, please give the cleaners in the district, at least another year or more after the Distributors dateline.

Respectively Submitted,

Marti Russell

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Appendix D

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Appendix E

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Appendix F

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Appendix G

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