ENVIRONMENTAL PROTECTION
COMPLIANCE AND ENFORCEMENT
Control and Prohibition of Air Pollution by Toxic Substances

Proposed Amendments: N.J.A.C. 7:27-17 and 7:27A-3.10
Authorized by: Lisa P. Jackson, Commissioner, Department of Environmental Protection.
Authority: N.J.S.A. 13:1B-3; 13:1D-1 et seq.; 13:1D-125 to 134; 26:2C-1 et seq., particularly 26:2C-8, 9.2 and 19

Calendar Reference: See summary below for explanation of exception to calendar requirement.
DEP Docket No:
Proposal Number: PRN 2007-

A public hearing concerning this proposal will be held on

Date: Friday, January 18, 2008

Time: 10:00 A.M. until end of comments

New Jersey Department of Environmental Protection
Public Hearing Room
401 East State Street
Trenton, NJ 08625

Submit written comments by(60 days after publication) to:
Attn: Alice A. Previte, Esq.
DEP Docket Number_____
Office of Legal Affairs
401 East State Street, 4th Floor
P.O. Box 402
Trenton, NJ 08625-0402

Written comments may also be submitted at the public hearing. It is requested (but not required) that anyone presenting oral testimony at the public hearing provide a copy of any prepared text to the stenographer at the hearing.

The Department of Environmental Protection (Department) requests that commenters submit comments on disk or CD as well as on paper. Submittal of a disk or CD is not a requirement. The Department prefers Microsoft Word 6.0 or above. Macintosh™ formats should not be used. Each comment should be identified by the applicable N.J.A.C. citation, with the commenter's name and affiliation following the comment.

The agency proposal follows:

Summary

As the Department has provided a 60-day comment period on this notice of proposal, this notice is excepted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

Perchloroethylene, also known as perc, PCE, tetrachloroethene and tetracholorethylene, is a solvent used in dry cleaning. Approximately 28,000 dry cleaners in the United States use perchloroethylene, which is the only air toxic emitted from the dry cleaning process. (USEPA, TTN, Fact Sheets) There are approximately 1600 dry cleaning facilities in New Jersey, with approximately 1800 dry cleaning machines, the majority of which utilize perchloroethylene. The total emissions of perchloroethylene from these facilities is estimated by the Department to be at least 467 tons per year, and may be as high as 545 tons per year.

Perchloroethylene has been identified by the United States Environmental Protection Agency (USEPA) as one of the top 10 toxic air contaminants in all 21 New Jersey counties as part of the USEPA National Air Toxics Assessment (NATA) for 1996. Studies performed by the Department and others show that the use of perchloroethylene may result in unacceptable health risks to the population of New Jersey.

The Department is proposing amendments to N.J.A.C. 7:27-17 to reduce the amount of perchloroethylene entering the environment by eliminating the use of perchloroethylene in the dry cleaning industry in New Jersey. The proposed amendments will have the effect of requiring dry cleaning facilities to switch to alternative technologies that use cleaning agents other than perchloroethylene. In order to continue operating, existing perchloroethylene dry cleaning facilities located in a residential building (co-residential facilities) could neither use nor emit perchloroethylene after July 27, 2009. Full elimination of perchloroethylene from dry cleaners would occur by January 1, 2021.

The Department anticipates that the proposed rules will reduce emissions of perchloroethylene from dry cleaning operations by approximately 50 percent within approximately six years, and by 100 percent by January 1, 2021, resulting in significantly reduced health risks to the public. Ultimately, the proposed amendments to N.J.A.C. 7:27-17 will reduce perchloroethylene emissions in New Jersey by approximately 500 tons per year, or more, as discussed in the Environmental and Social Impact sections below.

Background

The process of "dry cleaning," which is the process of cleaning fabrics with nonaqueous liquids, is believed to have begun in France in 1825. According to the International Agency for Research on Cancer (IARC):

> "Camphene" (turpentine) was used initially; in the late 1800s, benzene, benzene soap, naphtha and gasoline began to be used. In the 1920s, Stoddard solvent (mineral spirits or white spirits) was introduced in the United States in order to minimize the fire hazards associated with use of the more volatile hydrocarbon-based solvents. Carbon tetrachloride, the first chlorinated solvent used for dry cleaning, was introduced because of the high cost of petroleum solvents and was widely used until the 1950s. Its use was discontinued because of its toxicity and corrosiveness. Trichloroethylene was introduced in the 1930s. It is still used to a limited extent in Europe and in industrial cleaning plants throughout the world, but it has had a limited market in dry cleaning in the United States because of its incompatibility with acetate dyes.
>
> Use of tetrachloroethylene [also known as perchloroethylene] began to increase in the 1940s, and by the late 1950s it had virtually replaced carbon tetrachloride and trichloroethylene in commercial dry cleaning. Tetrachloroethylene is currently the solvent of choice in most of the world, except in regions, such as Japan, where petroleum-based solvents have remained important in the dry cleaning industry. In 1990, about 53% of the

world demand for tetrachloroethylene was for dry cleaning, and about 75% of all dry cleaners used it to clean garments. (IARC, 1995, Vol. 63)

Health and Environmental Effects of Perchloroethylene

According to the USEPA's Science Advisory Board, perchloroethylene is classified as a possible to probable human carcinogen. Exposure to perchloroethylene has been linked to the development of liver tumors in mice. "Exposure to perchloroethylene also is associated with chronic, non-cancer health effects, including liver and kidney damage in rodents, and neurological effects in humans. Acute exposures can result in loss of coordination; eye, nose and throat irritation; and headache." (USEPA, Basic Information, 2006)

> The major effects from chronic inhalation exposure to tetrachloroethylene in humans are neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning and color vision decrements. Other effects noted in humans include cardiac arrhythmia, liver damage, and possible kidney effects…
>
> ATSDR [Agency for Toxic Substances and Disease Registry] has calculated a chronic-duration inhalation minimal risk level (MRL) of 0.04 parts per million (ppm) (0.3 milligrams per cubic meter, mg/m^3) for tetrachloroethylene based on neurological effects in humans. The MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse noncancer health effects over a specified duration of exposure…
>
> Epidemiological studies of dry cleaning workers exposed to tetrachloroethylene and other solvents suggest an increased risk for a variety of cancers (esophagus, kidney, bladder, lung, pancreas, and cervix). These studies are complicated by potential exposure to other chemicals and personal lifestyle factors such as alcohol consumption and smoking were not taken into account. (USEPA, TTN, Fact Sheet)

IARC, too, has classified perchloroethylene as a Group 2A carcinogen, that is, "probably carcinogenic to humans." (IARC, 1995, Vol. 63) The full report on this cancer classification can be found at the IARC website (www.iarc.fr).

The state of California includes perchloroethylene on its list of "Chemicals Known to the State to Cause Cancer." The full list is available at www.oehha.ca.gov/prop65/prop65_list/files/p65single20306.pdf. California has developed a unit risk factor of 5.9×10^{-6} per ug/m^3, for evaluating cancer risk from inhalation of perchloroethylene. (CEPA, May 2005).

Air toxics, also known as hazardous air pollutants (HAPs), are known or suspected to cause cancer or other serious health or environmental effects. The USEPA used the National Air Toxics Assessment (NATA) data, which provides census tract level estimates of cancer risk and non-cancer hazard across the United States for a subset of the 188 HAPs, to generate a coarse-scale estimate of population risk for perchloroethylene area source dry cleaners. USEPA defines an area source dry cleaner as a dry cleaner that uses less than 2100 gallons per year of perchloroethylene. All of the dry cleaners in New Jersey are area source dry cleaners. The USEPA found that approximately 56,000,000 people nationwide are subject to a cancer risk of greater than one in one million, and that 400,000 people are subject to a cancer risk of greater than 10 in one million as a result of perchloroethylene from dry cleaners. This cancer risk is based on the estimated NATA-derived population cancer risk for perchloroethylene area source dry cleaners, using the California Environmental Protection Agency's potency values for conducting risk assessments. (70 Fed. Reg. 75884) Additional technical information pertaining

to the health effects of perchloroethylene are available from USEPA. (USEPA, Perc Health Risks, 2005)

A study was performed by New York State Department of Environmental Conservation (NYSDEC) involving dry cleaning facilities using perchloroethylene. Where the facilities were co-located with residential property, such as an apartment house with a dry cleaner on the ground floor, some of the residential areas showed high levels of perchloroethylene. "Data collected during this period indicate that resident exposures ranged from a geometric mean of 33 ug/m3 to a maximum of 5,000 ug/m3," which was equated by the USEPA to an estimated incremental lifetime cancer risk of between 4,000 in a million and 30,000 in a million, "about 140 times higher than the maximum typical area source risk," and a non-cancer hazard of as high as 20. (70 Fed. Reg. 75884) The NYSDEC study cited extensive research that the Hudson County Health Department conducted of perchloroethylene sources in Hudson County, New Jersey.

The USEPA referenced the NYSDEC study in its proposal of rules relating to dry cleaners. USEPA said, "apartments in these buildings are located very close to these dry cleaners, residents' exposures and their estimated cancer risks can be much higher than for typical area sources." According to the USEPA, "Co-residential facilities pose a unique exposure scenario. Because apartments in these buildings are located very close to these dry cleaners, residents' exposures and their estimated cancer risks can be much higher than for typical area sources. Based on the data evaluated for this proposal, estimated maximum cancer risks for people living in some of these buildings might be in excess of 100 in 1 million." (USEPA, Dry Cleaner Fact Sheet, 2006)

Based on USEPA's modeling effort for the 1999 NATA, typical background values of perchloroethylene in New Jersey are 0.15 $\mu g/m^3$, and in about half of New Jersey's counties result in a cancer risk greater than one in a million. This correlates with results from the Department's air toxics monitoring network, which in 2005 monitored perchloroethylene. The lowest annual average level in the State was found to be 0.07 $\mu g/m^3$, which was in a rural area. Levels in urban areas ranged from 0.24 $\mu g/m^3$ to 0.59 $\mu g/m^3$. However, these concentrations are annual averages, which do not account for higher short-term exposures, nor do they represent exposure for people who spend time near dry cleaning facilities or for those who are particularly sensitive, such as children.

In addition to air based environmental impacts, perchloroethylene has caused numerous problems with ground and ground water contamination. Such contamination is a result of poor house keeping, spills, and improper disposal of perchloroethylene containing waste by dry cleaning facilities. Perchloroethylene from dry cleaning has been present in over 250 remedial investigations involving ground and groundwater contamination in New Jersey, several involving extensive and expensive remediation cleanup projects. Additional perchloroethylene contaminated sites are found every year. Examples can be seen in the NJDEP Publicly Funded Cleanups Site Status Reports for 2001, 2002, and 2003, which include descriptions of numerous contaminated sites that involve perchloroethylene contamination.

As an example, during one remedial investigation of a leaking underground gasoline storage tank in October 2002, the Department found perchloroethylene contamination that it traced back to a dry cleaning operation in Manalapan, New Jersey. The Department asked the New Jersey Department of Health and Senior Services (DHSS) to help in the evaluation of perchloroethylene health impacts. During normal operations of the fourth generation dry cleaning equipment at the dry cleaning operation at this location, "inhalation exposures to

tetrachloroethylene for employees are considered a public health hazard particularly in the businesses adjacent to the dry cleaners." (NJDHSS, Tops 'N' Town Cleaners, 2006)

DHSS said that "[d]ry cleaning operations in New Jersey, although in compliance with existing NJDEP emission limits, may present a public health threat to individuals (employees, patrons, nearby residents). This includes sensitive populations such as children and the elderly. As such, the NJDEP should examine its regulations and policies with respect to the New Jersey dry cleaning industry." DHSS has been involved in several other similar investigations involving perchloroethylene contamination.

The State Coalition for Remediation of Drycleaners (SCRD), with 13 states currently listed as members, maintains a list of over 120 locations involved in cleanup of contaminated dry cleaning sites where a remedial system has operated for at least one year. (See http://www.drycleancoalition.org/.) It gives particular attention to those dry cleaning sites where innovative technologies have been applied to the clean up. The SCRD list demonstrates that perchloroethylene ground and ground water contamination from dry cleaning operations is a national issue, and not a problem limited to New Jersey.

Federal Regulations

In response to its evaluation of the toxicity of perchloroethylene and the risk to the public, the USEPA proposed a rule on December 9, 2005, to limit the use of perchloroethylene in dry cleaning facilities. This proposal was published in the Federal Register at 70 Fed. Reg. 75884 (December 21, 2005). The final rule adoption was published in the Federal Register at 71 Fed. Reg. 42724 (July 27, 2006).

USEPA based its proposal on a recent review of dry-cleaning technology, as well as recent analyses of the health risks that remain after implementation of the USEPA's 1993 air toxics regulation for perchloroethylene dry cleaners.

The final USEPA rule requires all new dry cleaning systems to meet fourth generationstandards; completely bans all transfer machines; and requires enhanced leak detection and repair (LDAR) to detect and repair perchloroethylene leaks, as well as some additional monitoring and record keeping requirements. The Federal rule requires all dry cleaning equipment located in the same building as residences, such as in an apartment building (called "co-residential" dry cleaning equipment), installed on or after July 27, 2006, to use non-perchloroethylene dry cleaning technology. Co-residential perchloroethylene equipment installed between December 21, 2005 and July 27, 2006 must include a vapor barrier to prevent perchloroethylene emissions from escaping within the building. All co-residential dry cleaners must cease using perchloroethylene by December 21, 2020. (See 40 CFR 63.322(o)5.)

The State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), now known as the National Association of Clean Air Agencies (NACAA), submitted comments on the USEPA dry cleaner proposal. In its comments NACAA said, "[W]e strongly believe the final rule should be more stringent, especially for the mixed-use facilities, because of the high risks associated with dry cleaning facilities. Even after the implementation of the NYSDEC regulations on dry cleaners, there remain troubling risk levels in mixed-use buildings." NACAA also said, "EPA estimates that cancer risks will be reduced from 30 to 220 in one million to 20 to 175 in one million. Again, this level of remaining risk is not protective enough. We recommend that for freestanding area sources, EPA call for fourth generation equipment, which includes closed-loop systems with refrigerated condensers and carbon adsorbers, along with weekly leak inspections,

annual third-party inspections and certification by an approved training program." Also, according to NACAA, "EPA should consider calling for the elimination of perc in dry cleaning, and encouraging substitution with less toxic, safe alternatives. This would go a long way toward reducing the risks to individuals exposed to dry cleaning operations and emissions." (STAPPA/ALAPCO, December 21, 2005)

Other States' Regulations

Some states or regions have adopted or proposed rules limiting the use of perchloroethylene in dry cleaning facilities. Rule 1421 adopted by South Coast Air Quality Management District in California (SCAQMD), "Control of Perchloroethylene Emissions from Dry Cleaning Systems," was adopted to "to protect public health by reducing perchloroethylene emissions from dry cleaning systems by transitioning them to non-perchloroethylene alternatives." (SCAQMD, December 16, 2002) Rule 1421 was amended on December 6, 2002, and requires a gradual transition from the use of perchloroethylene at dry cleaning facilities to alternative technologies. Existing facilities installing new cleaning equipment after July 1, 2004, must use non-perchloroethylene technologies. A new facility may not operate a perchloroethylene dry cleaning system after January 1, 2003, and existing facilities installing an additional cleaning machine after January 1, 2003, must install a non-perchloroethylene alternative. Full transition to non-perchloroethylene alternatives would occur by December 31, 2020.

The SCAQMD proposal says:

> Today's "state of the art" perc dry cleaning equipment with emission controls, such as a carbon absorber, door lock mechanism, drying sensor, sludge pump, leak detection mechanisms and periodically replacing gaskets, coils and filters, still generates a residual cancer risk from 15 to 90 in-one-million in a commercial location (with an average of 53×10^{-6}) and 20 to 140 in–one-million at a residential location (with an average of 80×10^{-6}). This cancer risk was estimated based on perc consumption (2.4 to 13.6 gallons per month) and 50 percent perc emitted.

On May 25, 2006, California Air Resources Board (CARB) held a public meeting on a proposal concerning regulating perchloroethylene dry cleaners. As a result of that public hearing, CARB "directed staff to return to them with a proposal for their consideration to phase out Perc from dry cleaning operations." As a result of CARB's direction, California has proposed a draft rule in which all perchloroethylene will be phased out by January 1, 2023. Also, no newly manufactured perchloroethylene dry cleaning system may be installed or operated after January 1, 2008, no perchloroethylene will be allowed at co-residential after July 1, 2010, and beginning July 1, 2010, any perchloroethylene dry cleaning system over 15 years old must be removed from service. (CARB, 2006)

The New York State Department of Environmental Conservation (NYSDEC) and the New York City Department of Environmental Protection (NYCDEP) adopted in 1997 and 1998, respectively, dry cleaner regulations intended to reduce and contain fugitive perchloroethylene emissions which specifically addressed dry cleaners in residential buildings (co-residential dry cleaners). NYCDEP has required all co-residential facilities to use only fourth generation dry cleaning systems, and to install a vapor barrier enclosure to reduce the amount of perchloroethylene that enters the residential areas of the building.

Proposed New Jersey Rules

The proposed rules require all existing co-residential perchloroethylene dry cleaning facilities to eliminate the use of perchloroethylene by July 27, 2009. The USEPA regulations require all co-residential perchloroethylene dry cleaning facilities to eliminate the use of perchloroethylene by December 20, 2020. (See 40 CFR 63.322(o)5.) The Department's evaluation of the high health risk from exposure to perchloroethylene, discussed below, justifies the earlier elimination of co-residential perchloroethylene dry cleaning.

Starting January 1, 2010, the proposed rules require facilities to replace perchloroethylene systems classified as third generation dry cleaning systems with fourth generation dry cleaning systems, or install a vapor barrier. A third generation dry cleaning system is a closed loop dry cleaning machine with a refrigerated condenser to control perchloroethylene emissions. A fourth generation dry cleaning system is a closed loop dry cleaning machine with a refrigerated condenser and an integral secondary control system utilizing a regenerative carbon adsorber, which is designed to reduce perchloroethylene concentrations in the dry cleaning system to less than 300 ppm and, therefore, reduce perchloroethylene emissions beyond the ability of third generation system. A system classified by the equipment manufacturers as better than fourth generation is similar to a fourth generation dry cleaning system, but with better electronic controls and built-in monitors. The Department will treat such systems as fourth generation, for purposes of the proposed rules.

A vapor barrier enclosure is a vapor tight enclosure around the dry cleaning equipment designed to capture all perchloroethylene emissions and vent them through an elevated stack, reducing the amount of perchloroethylene entering adjacent areas for co-located dry cleaning facility and increasing dispersion of the perchloroethylene for all dry cleaning facility.

The Department also proposes to require all dry cleaning facilities to install a fitting on the perchloroethylene storage tanks that will prevent spills during delivery of perchloroethylene, and which will return any vapors generated during the transfer back to the delivery vessel; to dispose of the perchloroethylene contaminated waste water generated during the dry cleaning process in a manner that does not release perchloroethylene to the outside environment; and to require operators of existing and new perchloroethylene machines to comply with Federal rules for perchloroethylene dry cleaning facilities. This includes leak detection and other monitoring and reporting requirements.

The Department has performed risk assessments involving perchloroethylene usage in dry cleaning facilities. A risk assessment for a generic dry cleaning facility was conducted to establish annual perchloroethylene use limits for those facilities with third and fourth generation dry cleaning systems. In a Department memorandum dated December 19, 2005, revised February 14, 2007, this generic dry cleaning facility risk assessment is described in detail. The Department developed source parameters for the generic dry cleaner scenarios, based upon six randomly selected existing dry cleaning facilities. A refined modeling analysis and risk assessment predicted ambient perchloroethylene concentrations in the vicinity of the dry cleaning facility and the resultant cancer risk.

The Department considered a number of factors when determining the perchloroethylene usage limitations for air pollution permit requirements. These included the predicted cancer risks, the likelihood of multiple dry cleaning facility impacts in one neighborhood, and modeling factors that tend to cause either over or under-prediction of perchloroethylene impacts.

Based on this analysis, the Department determined that dry cleaning facilities that employ third generation system should be limited to using no more than 90 gallons of perchloroethylene annually if there are no sensitive receptors within 100 feet of the facility. If a dry cleaner uses

only fourth generation dry cleaning system, it should be limited to an annual perchloroethylene use of no more than 150 gallons annually if there are no sensitive receptors within 100 feet of the facility. The 150 gallons per year limit for fourth generation dry cleaning system is consistent with the general permit available for dry cleaning facility in New Jersey. These usage limitations for a generic facility reflect an incremental cancer risk of 10 in a million. (NJDEP, February 14, 2007)

A dry cleaning facility that does not qualify for a general permit, or that requests annual perchloroethylene use above the proposed limits, needs a case-specific risk assessment before it can receive pre-construction permit approval. In addition to requesting a specific annual perchloroethylene usage, the applicant must provide source-specific information, such as building dimensions and location of nearest sensitive receptor (home, school, or hospital, for example). A dry cleaning facility with a predicted perchloroethylene cancer risk exceeding the criteria discussed above will need to reduce its proposed perchloroethylene emissions.

The Department is re-examining the February 14, 2007, memorandum and is considering modifying or eliminating the current dry cleaner general permit, issued in accordance with N.J.S.A. 26:2C-9.2(h). A general permit is a pre-approved permit and certificate that applies to a specific class of significant sources. By issuing a general permit, the Department indicates that it approves the activities authorized by the general permit, provided that the owner or operator of the source registers with the Department and meets the requirements of the general permit. If a source belongs to a class of sources that qualify for a general permit, and the owner or operator of the source registers for the general permit in accordance with N.J.A.C. 7:27-8.8, the registration satisfies the requirements at N.J.A.C. 7:27-8.3 for a permit and certificate.

Under the existing general permit, a dry cleaning facility that uses fourth generation dry cleaning system and that has a throughput of 150 gallons or less is authorized under a general permit to conduct the dry cleaning operation. A dry cleaner that uses third generation dry cleaning system or has a throughput of greater than 150 gallons is authorized under the general permit.

As part of the process of drafting the proposed rules the Department held meetings with representatives of the regulated community on April 4, 2006, May 17, 2006, and June 13, 2006. Some of the suggestions the Department received during these meetings are incorporated into this proposal. However, industry representatives requested that the phase out of perchloroethylene not be included in this proposal. Because of the health risks to the residents of New Jersey, the Department is proposing a total phase out of perchloroethylene.

Alternative Technologies

The Department anticipates that as a result of the proposed rules, some of the smaller dry cleaners will become drop shops, which are facilities that accept garments from their customers and forward the garments to a larger centralized factory-type facility to be dry cleaned. Other facilities will switch to a non-perchloroethylene technology.

There are acceptable, cost effective, non-toxic alternatives to perchloroethylene in dry cleaning. These alternatives are discussed below, and in the SCAQMD proposal. (SCAQMD, December 6, 2002)

Hydrocarbon Solvent Cleaning

One alternative is the use of hydrocarbon solvents (also called petroleum solvents). All hydrocarbon solvents used in dry cleaning consist of aliphatic hydrocarbons. Hydrocarbon

solvents are flammable, volatile, and toxic, and they have an odor. Moreover, all of the hydrocarbon solvents are volatile organic compounds (VOCs), which are regulated under N.J.A.C 7:27-16. None is classified in the Federal Clean Air Act as a hazardous air pollutant. In addition the USEPA has recently decided not to regulate the use of hydrocarbon solvents used in dry cleaning. (See 71 Fed. Reg. 28320 (May 16, 2006).)

The dry cleaning machines predominantly used for petroleum solvents are closed-loop machines equipped with primary control, which is similar to the refrigerated condenser in a perchloroethylene dry cleaning machine, to reduce hydrocarbon emissions.

Volatile Methyl Siloxane Cleaning

Another alternative to perchloroethylene is decamethylcyclopentasiloxane (D5) or volatile methyl siloxane, which is an odorless, colorless liquid that has consumer and industrial applications. D5 is used as an ingredient in personal health and beauty products, including deodorants, antiperspirants, cosmetics, shampoos, and body lotions. It is also used as a dry cleaning solvent, and is not a toxic or hazardous air pollutant. While not considered a VOC, it is flammable and is treated essentially the same as hydrocarbon dry cleaning.

Carbon Dioxide (CO_2) Cleaning

Carbon dioxide cleaning (CO_2) is a process that has been developed for use by commercial and retail dry cleaners. CO_2 is a non-flammable, non-toxic, colorless, tasteless, odorless naturally-occurring gas that, when subjected to pressure, becomes a liquid solvent. CO_2 is naturally occurring and is also used in other applications, such as carbonating soft drinks.

The liquid CO_2 cleaning machines have a configuration that is similar to a solvent or perchloroethylene machine. The system is closed-loop and comes equipped with a cleaning chamber, storage unit, filtration, distillation unit, and lint trap. Washing, vapor recovery, and drying are all performed in the cleaning chamber. The CO_2 used in this process is an industrial by-product from other existing operations. There is no net increase in the amount of CO_2 emitted; therefore, this process does not contribute to global warming. There are three manufacturers of CO_2 dry cleaning equipment in the United States.

Professional Wet Cleaning

Professional wet cleaning (wet cleaning), first introduced in 1991 as an alternative to dry cleaning, is different than commercial laundering in several aspects, although both use water and detergent. Wet cleaning uses computer-controlled washers and dryers to minimize agitation and heat, which can damage garments. Wet cleaning systems use non-toxic, biodegradable detergents, which are approved for disposal into the sewer system. The detergents are designed to be pH neutral and incorporate agents that prevent the interlocking of fibers. Many stains, such as salts, sugars, and foods and drinks, are readily removed by the wet cleaning process. Wet cleaning can also clean oil-based stains with the use of pre-spotting chemicals that are specifically designed for water-based cleaning. Wet cleaning has the least impact on the environment and is the preferred method for cleaning for operations where wet cleaning is an acceptable alternative to perchloroethylene dry cleaning**.**

Conclusion

As indicated by the documents referenced above and actions taken by USEPA, New Jersey, and other states, emissions of perchloroethylene from dry cleaning operations result in unacceptable health risks to much of the population of New Jersey. Also as indicated above, and in the impact statements below, there are acceptable, cost effective alternatives to the use of perchloroethylene in dry cleaning. The proposed rules will reduce the emissions of perchloroethylene from dry cleaning operations by 100 percent by January 1, 2021, resulting in significantly reduced health risks to the public due to the reduced exposure of perchloroethylene. This is consistent with actions taken or being taken by other states and regions. Although the proposed rules are more restrictive than those adopted by USEPA, the Department believes the reduced heath risk to the public justifies the restrictions.

N.J.A.C. 7:27-17 Control And Prohibition Of Air Pollution By Toxic Substances

7:27-17.1 Definitions

The proposed amendments add fifteen new definitions to N.J.A.C. 7:27-17.1, for the terms, “closed-loop machine,” “co-located,” “dry cleaning facility,” “dry cleaning system,” “fourth generation dry cleaning system,” “perchloroethylene dry cleaning,” “primary control system,” “refrigerated condenser,” “residence,” “secondary control system,” “stand alone building,” “third generation dry cleaning system,” “vapor balance system," “vapor barrier enclosure” and “ wastewater treatment unit.” Except for “co-location,” “residence,” and “stand alone building,” all of these definitions refer to equipment, air pollution controls and processes used in the dry cleaning industry.

The proposed definitions for “co-location,” “residence,” and “stand alone building,” are used to define situations where use of perchloroethylene dry cleaning equipment may result in an unacceptable additional health risk, such as in apartment buildings and strip malls. The definition of “fourth generation dry cleaning system” in this proposal includes all equipment that meets or exceeds the standards of a fourth generation dry cleaning machine. The definition of “secondary control system” includes a less stringent standard for dry cleaning machines manufactured prior to January 1, 2002. It has been demonstrated to the Department that the 300 ppm standard for equipment manufactured after January 1, 2002, is not attainable for most older equipment.

The proposed definition of “vapor balance system” is the same as the definition of the term at N.J.A.C. 7:27-16, Control and Prohibition of Air Pollution by Volatile Organic Compounds.

7:27-17.4 Discharge of toxic substances

Proposed N.J.A.C. 7:27-17.4(d) and N.J.A.C. 17.10(a) through (k) are new.

In proposed new N.J.A.C. 7:27-17.4(d), the Department exempts dry cleaning systems emitting a toxic substance, which includes perchloroethylene, from meeting the 40 foot stack height requirement and other discharge requirements at N.J.A.C. 7:27-17.4(a) and (b). Because closed-loop dry cleaning systems do not have a stack or vent, it is not possible for closed-loop dry cleaning systems to meet the discharge requirements of N.J.A.C. 7:27-17.4(a) and (b). Subchapter 17 does not apply to dry cleaning systems that do not use toxic substances.

7:27-17.10 Perchloroethylene dry cleaning facilities

The Department proposes at new N.J.A.C. 7:27-17.10 to regulate perchloroethylene dry cleaning facilities. Proposed new N.J.A.C. 7:27-17.10(a) and (b) regulate perchloroethylene dry cleaning facilities that share part of the same building, called "co-located," with residences. Proposed new N.J.A.C. 7:27-17.10(c) applies to dry cleaning facilities that are co-located other than with residences. Proposed new N.J.A.C. 7:27-17.10(d) applies to stand alone facilities. Proposed new N.J.A.C. 7:27-17.10(e) through (i) apply to all perchloroethylene dry cleaning facilities.

Proposed N.J.A.C. 7:27-17.10(a) prohibits the installation of any new perchloroethylene dry cleaning systems that are co-located with a residence on or after July 27, 2006. This is the same date as in the Federal rules at 40 CFR 63.320(b)(2)(ii) and 63.322(o)(4) and (5)(ii), which prohibit any new dry cleaning system from being installed in a building with a residence.

N.J.A.C. 7:27-17.10(b)1 prohibits a perchloroethylene dry cleaning system to be co-located in a building with a residence to be installed and operated, unless it is installed and operated in compliance with Federal requirements included in 40 CFR Part 63, Subpart M—National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities. The Federal rules allow a perchloroethylene dry cleaning system co-located with residential property, such as an apartment house with a perchloroethylene dry cleaning system on the ground floor, installed between December 21, 2005, and July 27, 2006, to continue operating until July 27, 2009, provided the dry cleaning facility installs a vapor barrier. Proposed N.J.A.C. 7:27-17.10(b)2 would prohibit a dry cleaning facility with a perchloroethylene dry cleaning system that is co-located with a residence from using or emitting perchloroethylene as of July 27, 2009.

Under proposed N.J.A.C 7:27-17.10(c), an existing perchloroethylene dry cleaning facility that is co-located in a building that does not include a residence cannot operate unless it is installed and operated in compliance with Federal requirements at 40 CFR Part 63, Subpart M—National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities. Further, the perchloroethylene dry cleaning system must be at least a third generation dry cleaning system. This bans the use of a dry cleaning system that is not a closed loop machine, such as transfer machines and vented dry cleaning systems. The Department is not aware of any transfer machines or vented dry cleaning system remaining in use in New Jersey. Lastly, proposed N.J.A.C 7:27-17.10(c)3 requires the perchloroethylene dry cleaning system to be at least a fourth generation dry cleaning system as of January 1, 2010, or the facility must install a vapor barrier enclosure. An installation must meet the vapor barrier enclosure requirements at proposed N.J.A.C. 7:27-10(i) to satisfy this requirement.

Proposed new N.J.A.C 7:27-17.10(d) applies to stand alone dry cleaning facilities with perchloroethylene dry cleaning systems. The proposed rules prohibit the use of a new or existing perchloroethylene dry cleaning system unless it is installed and operated in compliance with Federal requirements at 40 CFR Part 63, Subpart M—National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities. Further, to operate on or before December 31, 2009, the perchloroethylene dry cleaning system must be at least a third generation dry cleaning system. On and after January 1, 2010, the perchloroethylene dry cleaning system must be at least a fourth generation dry cleaning system, or the facility must install a vapor barrier enclosure. An installation must meet the vapor barrier enclosure requirements at proposed N.J.A.C. 7:27-17.10(i) to satisfy this requirement.

Proposed N.J.A.C 7:27-17.10(e) addresses adding perchloroethylene to dry cleaning facilities. The Department intends by this provision to limit spills and emissions that may occur during the filling of perchloroethylene storage tanks. The proposed rule requires the owner or operator of the dry cleaning facility to ensure that all additions of perchloroethylene to the dry cleaning system storage tanks are made through a spill proof attachment that includes a vapor balance system with the delivery vessel or container.

Because the wastewater from a perchloroethylene dry cleaning facility can contain perchloroethylene, the Department proposes at N.J.A.C 7:27-17.10(f) to require all dry cleaning facilities to dispose of perchloroethylene contaminated wastewater generated during the dry cleaning process in a manner that does not release perchloroethylene to the outside environment. The dry cleaning facility could choose to have the wastewater removed and treated appropriately; treat the wastewater on site, through evaporation; or appropriately discharged to a publicly owned treatment works.

Proposed N.J.A.C 7:27-17.10(g) requires dry cleaning facilities to stop using perchloroethylene in, and emitting perchloroethylene from dry cleaning facilities on or after January 1, 2021. Those co-located with a residence shall not use or emit perchloroethylene as of July 27, 2009, in accordance with proposed 17.10(b)2.

N.J.A.C 7:27-17.10(h) allows a third generation dry cleaning system to be upgraded to a fourth generation system. If the upgrade is achieved using the installation of a secondary control system manufactured by other than the manufacturer of the perchloroethylene dry cleaning system, then a performance demonstration will be required. If the upgrade is achieved using the installation of a secondary control system supplied by the original manufacturer of the third generation dry cleaning system, then no performance demonstration will be required.

By definition, a secondary control system achieves a concentration of perchloroethylene in the recirculating air at the end of the drying cycle below 300 ppm for systems manufactured after January 1, 2002, or below 500 ppm for systems manufactured before January 1, 2002.

Proposed new N.J.A.C. 7:27-17.10(i) sets forth the vapor barrier enclosure requirements. These requirements are the same as in the Federal rule at 40 CFR 63.321.

N.J.A.C 7:27A-3.10 Civil administrative penalties for violation of rules adopted pursuant to the Act

The Department proposes to amend N.J.A.C. 7:27A-3.10(m)17 to add penalties for violations of the proposed amendments to N.J.A.C. 7:27-17. The penalties for violations of the perchloroethylene dry cleaning requirements are consistent with existing penalties for similar violations for other Department rules. The penalties included in N.J.A.C. 7:27A-3.10(m)17 for violations of proposed N.J.A.C. 7:27-17.10(a), (b)2, (c)2, (c)3, (d)2, (d)3, and (g) are at the statutory maximum. Dry cleaner systems in violation of these sections would not be eligible for a permit and would have to cease operation and; therefore, the maximum penalty is justified.

The penalties for N.J.A.C. 7:27-8.3(e), Class 5, which would include perchloroethylene dry cleaning systems because of emissions of hazardous air pollutants (HAP), are used as the basis for the proposed penalties for N.J.A.C. 7:27-17.10(b)1, (c)1, (d)1, (e) and (f).

Under the Grace Period Law, N.J.S.A. 13:1D-125 to -133, a person responsible for a minor violation is afforded a period of time by the Department to correct the violation in order to avoid being subject to a penalty. The Grace Period Law was incorporated into N.J.A.C. 7:27A (see 38 N.J.R. 5244(a), 39 N.J.R. 3352(a)), and allows for most non-emission related violations

to be considered minor, and all emission related violations to be non-minor. Each proposed violation is emission related and, therefore, is non-minor and ineligible for a grace period.

Social Impact

The proposed new rules and amendments are anticipated to have a positive social impact. The environment should be improved for the residents of New Jersey as a result of reduced health risks from the reductions of perchloroethylene emissions from dry cleaning operations in New Jersey. As discussed above, exposure to perchloroethylene from dry cleaning operations results in a significant cancer risk.

In order to achieve the reduction in health risks, residents may experience some differences in their garment cleaning. Although the alternatives to perchloroethylene dry cleaning are effective in most dry cleaning situations, there are some situations where the alternatives are not as effective. In these cases, additional care must be used either in preparing the garments prior to cleaning, such as additional spot cleaning, or in handling the garments after cleaning, such as additional pressing. The Department intends to minimize the impact of the proposed rules by allowing a gradual transition from perchloroethylene dry cleaning facilities to non-perchloroethylene alternatives by 2021. Customers may have to pay slightly higher prices for the possible additional services resulting from non-perchloroethylene alternatives, as discussed in the Economic Impact, below.

Economic Impact

The proposed new rules and amendments affect approximately 90 percent of the dry cleaning industry in New Jersey. The rest of the dry cleaning industry, approximately 170 out of the 1600 total dry cleaning facilities, already utilize non-perchloroethylene technology and will not be affected by the proposed rules. The Department has phased in the rules, such that the complete prohibition of the use or emission of perchloroethylene does not take effect until January 1, 2021, allowing for the dry cleaning industry adequate time to change their business operations to eliminate the use of perchloroethylene.

A new dry cleaning system typically has a useful life of approximately 15 years. This proposal will allow approximately 13 years to eliminate the use or emission of perchloroethylene; therefore, it is unlikely that facilities will choose to install any new perchloroethylene dry cleaning systems. Those that do install new perchloroethylene dry cleaning equipment could find themselves in 2021 unable to continue to use a dry cleaning system that has several years of useful life remaining.

The greatest economic impact of this proposal on any individual dry cleaning facility will be the phase-out by July 27, 2009, of perchloroethylene dry cleaning systems that are co-located with residences. All such existing co-located perchloroethylene dry cleaning facilities will have to change their operations in less than two years, in order that they neither use nor emit perchloroethylene. Due to local fire codes, it is unlikely that a hydrocarbon dry cleaning system could be installed in a residential building. Therefore, an existing dry cleaning facility co-located with residences would need to stop offering dry cleaning services to its customers, move the dry cleaning facility to a non-residential facility, or become a drop shop that transfers garments to another dry cleaning facility to be cleaned. This third option is the most likely option. Operating as a drop shop will likely result in a reduction of approximately 30 percent in profit from a facility that formerly operated perchloroethylene dry cleaning equipment.

Although it is not known how many co-residential dry cleaning facilities currently exist in New Jersey, a survey performed during recent inspections of about 600 facilities indicates that approximately four percent of the dry cleaning facilities inspected are co-located with residences. Based on a total of 1600 dry cleaning facilities, this would mean there are between 50 and 100 such facilities Statewide.

The typical life cycle for most dry cleaning systems is approximately 15 years. Although some dry cleaning systems are kept in service for more than 15 years, a 15 year life cycle is the accepted standard for dry cleaning systems. Dry cleaning facilities currently using third generation dry cleaning systems would be given more than two years to either replace or upgrade their dry cleaning systems. This will allow time for many older third generation dry cleaning systems to complete their normal life cycle. The Department anticipates that most new dry cleaning systems purchased in the future will utilize non-perchloroethylene technology, as discussed below.

There are approximately 1100 third generation perchloroethylene dry cleaning systems, all of which will be required to be upgraded to fourth generation dry cleaning systems or install a vapor barrier enclosure or non-perchloroethylene technology by January 1, 2010. Most third generation dry cleaning systems manufactured since 2002, and some manufactured prior to 2002, were designed as fourth generation dry cleaning systems, but without the integral secondary control systems. Therefore, an upgrade of that system to fourth generation would be appropriate. An upgrade for the system would cost approximately $5,000 to $7,000 per system.

Older third generation dry cleaning systems, including most dry cleaning systems manufactured prior to 2002, would need significant alterations to install secondary control systems. An upgrade of those systems would cost at least $12,000. A secondary control system for equipment manufactured prior to 2002 must achieve a concentration of perchloroethylene in the recirculating air at the end of the drying cycle of less than 500 ppm. An older upgraded dry cleaning systems would likely not meet that standard; therefore, most third generation dry cleaning systems manufactured prior to 2002 would need to be replaced with fourth generation dry cleaning systems by January 1, 2010, or the operator would need to install a vapor barrier enclosure around the third generation dry cleaning systems.

As indicated below, to purchase a new fourth generation dry cleaning system would typically cost between $38,000 to $83,000 per system, depending upon the system's capacity, make and model. Many dry cleaning facilities would likely purchase a machine with a 35 pound capacity for approximately $40,000.

There are approximately 900 dry cleaning facilities with dry cleaning systems installed prior to 2002, and nearly 600 of these were installed prior to 1995. Therefore, 600 third generation dry cleaning systems installed prior to 1995 will be more than 15 years old by December 31, 2009, and most will need to be replaced because they have reached the end of the system's normal 15 year life expectancy. Under the USEPA rules now in effect, all new dry cleaning systems must meet fourth generation standards or better. Accordingly, whether or not the Department adopts the within proposed rules, any facility that replaces its existing dry cleaning system would be required to install fourth generation dry cleaning system. Therefore, the requirement in this proposed rule to use a fourth generation dry cleaning system or install a vapor barrier enclosure by January 1, 2010, will have no economic impact on the nearly 600 perchloroethylene dry cleaning systems installed prior to 1995.

Most of the remaining 300 third generation systems manufactured between 1995 and 2002 will be between eight and 15 years old by January 1, 2010 (an average of 11.5 years old),

and most of these systems would need to be replaced before reaching the end of the equipment's life expectancy of 15 years. Therefore, the lost usefulness of the system that would need to be replaced would be the equivalent of approximately 3.5 years. As indicated above, a new 35 pound perchloroethylene fourth generation dry cleaning systems costs around $40,000. Assuming a 15 year life expectancy of the dry cleaning system, this equates to less than $2,700 per year, or no more than approximately $9,450 for the average loss of 3.5 years of useful life of the machines being replaced. The newest systems that would need replacement would be eight years old, with a maximum of seven years of useful life remaining; therefore, the lost use of that system would equal $18,900. Consequently, assuming 300 systems will be replaced as a direct result of the proposed new rules and amendments, the cost to the industry overall will be less than $2,835,000.

However, in the event that a facility has third generation the dry cleaning system, including pre-1995 equipment, and plans to keep operating that system beyond December 31, 2009, rather than incur a cost of more than $12,000 to upgrade the system, or $40,000 to replace the machine, the dry cleaning facility may elect to install a vapor barrier enclosure. The average cost of installing a vapor barrier enclosure is approximately $10,000. This may be a more affordable alternative for some dry cleaning facilities, and would reduce the financial impact to the dry cleaning industry as a whole.

Most of the approximately 200 third generation dry cleaning system installed after 2002 can be upgraded to fourth generation dry cleaning system standards for approximately $7,000. This will result in a cost to the dry cleaning industry of approximately $1,400,000. This will also allow the upgraded system to operate at least seven and possibly 11 additional years, beyond the 2010 deadline for elimination of third generation dry cleaning system, or installation of a vapor barrier enclosure. Therefore, assuming an average of nine years of useful life of the upgraded dry cleaning system, the annual cost to the facility will be less than $780.00.

After December 31, 2020, no dry cleaning facility may use or emit perchloroethylene. Therefore, the phase out period for use of perchloroethylene dry cleaning equipment is approximately 13 years. The 13 year period for the phase-out of perchloroethylene should be sufficient for most perchloroethylene dry cleaning systems now in use to have passed their useful life and be replaced with non-perchloroethylene technology. Most facilities currently using a fourth generation dry cleaning system, or those facilities that will upgrade their third generation dry cleaning system to fourth generation dry cleaning system standards or install a vapor barrier enclosure, will be able to use their existing dry cleaning system through its entire estimated life.

Because a 15 year life cycle is the accepted standard for dry cleaning systems, and the proposed rules will result in the elimination of perchloroethylene from dry cleaning systems in approximately 13 years, it is expected that most, if not all, new dry cleaning systems will utilize non-perchloroethylene technology as a result of this rule.

Any higher costs for establishing a new non-perchloroethylene dry cleaning facility, as discussed below, are not expected to be significant and are greatly outweighed by the reduced health risk to New Jersey residents.

A cost of a typical dry cleaning dry cleaning systems versus several of the non-perchloroethylene technologies is set forth in the table below. Although the figures were calculated based upon costs in California, the Department anticipates that the cost to New Jersey dry cleaning facilities would be comparable. (SCAQMD, 12/6/2002)

Solvent Type[1]	**Machine Type**	**Rated Capacity (lbs.) (lbs)**	**Cycle Time (minutes)**	**List Price ($)**[2]
Water (wet) cleaning)	Washer mount)	15-85	12-35	8,700-30,400
Water (wet) cleaning	Dryer	15-135	12-30	2,100-12,900
Water (Green) Jet)	Dry-to-Dry	45	32	30,000
Perchloroethylene	Secondary Control	35-90	45-55	38,000-83,000
Hydrocarbon	Dry to Dry	30-90	50-60	36,000-98,000
Green Earth[3]	Dry to Dry	35-90	45-60	43,000-98,000
CO_2	Dry to Dry	60	35-40	140,000

1. From Machine Manufacturers Survey (CARB, 2004), unless otherwise noted.
2. This reflects manufacture's list price; machines can cost less. Also, this does not include installation costs.
3. GreenEarth is the only siloxane technology currently available. This does not include the annual GreenEarth "Affiliation Fee" for the use of the GreenEarth technology

Based on a study performed by the California Air Resources Board, titled "California Dry Cleaning Industry Technical Assessment Report," dated October 2005, the annual operating cost for the first five years of operation for a typical perchloroethylene dry cleaner in California is $27,376. The study shows that the annual total operating cost for a typical dry cleaner using hydrocarbon technology was comparable to the total annual cost of a perchloroethylene dry cleaning system, ranging from $27,755 to $28,535. Several other non-perchloroethylene technologies were also comparable to the total annual cost of a perchloroethylene dry cleaning system, ranging from $20,929 for professional wet cleaning to $32,718 for Green Earth dry cleaning system. Dry cleaning systems using carbon dioxide were significantly more expensive to operate.

Assuming a current annual cost for a perchloroethylene dry cleaning system to be $27,376, and the highest annual cost for hydrocarbon technology of $28,535, the approximate annual increased cost would be $1,159 or less to switch to non-perchloroethylene technology. Based upon the approximately 1600 facilities in New Jersey currently using perchloroethylene, the cost to the New Jersey dry cleaning industry to switch to non-perchloroethylene technology would be approximately $1,854,400 per year or less.

In addition to the cost of purchasing and operating a non-perchloroethylene dry cleaning system, another factor to be considered in the cost is the cleaning cycle time. The typical cycle time for a perchloroethylene dry cleaning system is approximately 35 minutes, while the cycle time for a non-perchloroethylene dry cleaning system is typically approximately 45 minutes. Therefore, assuming the dry cleaning systems have similar capacities, a non-perchloroethylene dry cleaning facility could process fewer clothes in a work day. Accordingly, some dry cleaning facilities may need to purchase a larger capacity dry cleaning system to achieve the same throughput of clothes as is currently handled by their perchloroethylene dry cleaning system.

The annual cost to operate a dry cleaning facility is summarized in the table below, copied verbatim, including footnotes from the California report (SCAQMD, Table VII-5, December 16, 2002). The Department anticipates that annual costs in New Jersey would be similar to the annual costs in California. Minor variations, such as energy costs, would have a negligible effect on the annual costs expected for similar dry cleaning systems in New Jersey.

Table VII-5. Annual Cost Comparison for the First Five Years of a Typical Size Dry Cleaning Facility[1]

Technology	Solvent	Average Cost Detergent/Spotting Agents	Electricity Cost	Gas Cost[2]	Average Maintenance[3]	Affiliation Fee	Filters[4]	Cost to Replace Gaskets	Machine Cost[5]	Waste Disposal ($/gal.)[6]	Total Annual Cost[7]
Perc	$1,159[8]	$1,500	$850	$7,800	$375	N/A	$320	$500	$12,372	$2,500	$27,376
Hydrocarbon:											
DF-2000	$546	$1,500	$850	$3,580	$250	N/A	$371	$500	$17,674	$2,640	$27,911
PureDry	$1,170	$1,500	$850	$3,580	$250	N/A	$371	$500	$17,674	$2,640	$28,535
Shell 140	$390	$1,500	$850	$3,580	$250	N/A	$371	$500	$17,674	$2,640	$27,755
EcoSolv	$507	$1,500	$850	$3,580	$250	N/A	$371	$500	$17,674	$2,640	$27,872
Stoddard Solvent	$283	$1,500	$1,160[9]	$3,580	$600	N/A	$371	$500	$17,674	$2,640	$28,308
GreenEarth	$1,715	$1,100[10]	$850	$4,370	$850	$2,500	$371	$500	$18,202	$2,260[11]	$32,718
Rynex 3	$1,000	$100 (spotting agents only)	$850	$3,580	$625	N/A	$371	$500	$17,674	$120[12]	$26,220
CO_2	$552	$1,500	$940	$2,290	$2,250	N/A	$238[13]	$500	$50,121	$490	$58,881
Professional Wet Cleaning	$0-$48[14]	$2,355[15] (detergent/ conditioner only)	$660 (washer/ dryer)	$5,700	$320[15]	N/A	N/A	$500	$11,343	N/A	$20,926
Green Jet	$1,152	$1,500	$600	Unknown	$400	N/A	$124[16]	N/A	$8,573	N/A	>$12,349[17]

1. Where applicable, costs are normalized to about 48,800 pounds of clothes dry cleaned per year for a typical facility. Additionally, costs are rounded to the nearest value.
2. Therm usage is taken from PPERC, 2004a report using current PG&E gas rates. The gas usage for Stoddard and Rynex 3 machines are assumed to be the same as DF-2000.
3. Information is taken from ARB's Machine Manufacturers Survey, unless otherwise noted.
4. Cost for standard filters is used for this comparison. Standard filters cost $32 each. Annual costs may vary slightly if the machine uses jumbo filters and spin disk.
5. Out of pocket costs assuming a five year loan and a ten percent interest rate.
6. Waste disposal costs range from $8.75 to $10 per gallon (ARB, 2005b). The average of $7 was used for this table.
7. Costs given are with the assumption that the facility has no waste water treatment unit.
8. Includes the current $4 Assembly Bill 998 fee.
9. This includes electricity cost for transfer machine and dryer/clairner.
10. Source: ARB, 2005c.
11. Required only in some local districts.
12. Source: ARB, 2005g.
13. Filter cost for a CO_2 machine are $26 each and lint filter cost are $9 each.
14. The cost given is the yearly financial impact increase for water when switching from dry cleaning to Professional Wet Cleaning (PPERC, 2002).
15. Source: PPERC, 2002.
16. This cost includes $4 for the set of eight felts; $100 for the lint bag; and $20 for the foam filters.
17. It is important to note that the total operating cost shown for the Green Jet technology will increase because gas costs are unknown.

The proposed rules also require a perchloroethylene dry cleaning facility to ensure that a vapor tight fitting is installed and used on all storage tanks in perchloroethylene dry cleaning systems by January 1, 2009. This fitting would prevent spills of perchloroethylene during delivery of the solvent to the facility, and direct any perchloroethylene vapors displaced during the delivery back to the delivery vessel. The installation would prevent not only air emissions, but also spills, which have been a significant source of contamination. The cost of the fittings is approximately $300.00 each. Accordingly, the total cost to the industry would be approximately $500,000.

The perchloroethylene dry cleaning process generates wastewater containing small amounts of perchloroethylene. This waste is generated from water separators, steam presses, and desorption of carbon adsorbers. Some facilities may currently mist or spray water generated in the dry cleaning process into the open air to eliminate the wastewater. This wastewater is contaminated by perchloroethylene and is, therefore, classified as a hazardous waste. Disposal of the waste by spraying into the open air is damaging to the environment. The proposed rules will prohibit this practice. Because spraying and misting of contaminated wastewater is already not allowed by hazardous waste treatment, storage, and disposal regulations, N.J.A.C. 7:26G, there should be no additional cost to the dry cleaning industry from the proposed amendment limiting the practice.

The proposed rules will require dry cleaning facilities to dispose of the perchloroethylene waster water as hazardous waste, or to treat the wastewater on site by filtering the water with carbon filters and then either evaporate or, if allowed by the local publicly owned treatment works, discharge the treated wastewater. These disposal options are currently used in the perchloroethylene dry cleaning industry and should not result in any change in the current operating costs for dry cleaning facilities.

A California staff presentation for CARB's rule proposal includes a preliminary cost analysis, which compares the financial impacts of operating non-perchloroethylene dry cleaning technology versus perchloroethylene dry cleaning technology. California estimates the total statewide cost of CARB's proposed rule would be about $39 million, which would be about $2.90 per pound of reduced perchloroethylene emissions.(CARB, 2006) The cost in New Jersey per pound of reduced perchloroethylene emissions is estimated to be approximately the same as for California. The additional cost to the public for dry cleaning as a result of this proposal should be minimal, amounting to less than $0.05 per garment, and possibly as low as $0.02 per garment. At a current cost of at least $1.00 per garment, and typically $2.50 to $5.00 per garment, an average increase of less than $0.05 per garment would be small to the dry cleaning facility and insignificant to the customers if all of the additional costs are passed to the customer.

As a result of this proposal, it is expected that most dry cleaning facilities will have a less than $1,000 increase in annual operating costs, few if any would see increases of $5,000 per year, and some dry cleaning facilities may see a reduction in annual operating costs primarily due to lower waste disposal costs. The total annual cost to the dry cleaning industry as a result of the proposed rules is anticipated to be less than $2,000,000. The average facility should incur a cost of less than $1,500 per year.

As discussed below, the benefit to the environment from the reduction in emissions of perchloroethylene, the reduction in the generation of hazardous waste containing perchloroethylene, and the reduction in future ground and ground water contamination from the elimination of the use of perchloroethylene more than justifies any additional expense from the use of non-perchloroethylene technologies.

The proposed changes to the penalty schedule in N.J.A.C. 7:27A will have no economic impact on persons who comply with the air pollution control rules. For violators, the economic impact of the proposed rules will vary according to the severity of the air pollution exceedance or other violation. The proposed penalties for violations of proposed additions to N.J.A.C. 7:27-17 are comparable to violations of similar provisions elsewhere in N.J.A.C. 7:27.

Environmental Impact

The Department anticipates that the proposed new rules and amendments will have a positive impact on the environment of the State. There are approximately 1700 perchloroethylene dry cleaning systems in New Jersey, at approximately 1500 dry cleaning facilities. There are also approximately 170 dry cleaning systems using a non-perchloroethylene technology. The Department anticipates that the proposed rules will result in an increase in non-perchloroethylene technology dry cleaning systems, as the number of perchloroethylene dry cleaning systems decrease.

The consumption of perchloroethylene per dry cleaning facility varies from less than 90 gallons per year to more than 800 gallons for a large multi-systems operation. The percent of perchloroethylene losses, or emissions, varies from system to system. In most cases, the average amount of perchloroethylene that a dry cleaning facility can use in a third generation dry cleaning system is limited by permit requirements to 90 gallons per year. The average amount of perchloroethylene that a typical dry cleaning facility uses in a fourth generation dry cleaning system is 120 gallons per year (with a permit limit of 150 gallons per year in most cases). The Department has approved the use of more perchloroethylene in certain cases. The amount of perchloroethylene that a well-operated and maintained third generation dry cleaning system emits into the environment is approximately 50 percent of the annual perchloroethylene usage. The perchloroethylene that is not emitted remains in the dry cleaning system, continually recycled, and eventually shipped off-site as waste. A well-operated and maintained fourth generation dry cleaning system typically emits approximately 25 percent of the perchloroethylene that the system uses. Accordingly, an optimal third generation dry cleaning system will emit 45 gallons of perchloroethylene per year, and an optimal fourth generation dry cleaning system will emit between 30 and 35 gallons per year. Nearly 1100 of the perchloroethylene dry cleaning systems in use in the State are third generation dry cleaning systems, and more than 600 are fourth generation. Based on these figures, the annual perchloroethylene emissions from well-operated and maintained dry cleaning systems is approximately 467 tons of perchloroethylene per year, statewide. The USEPA National Emissions Inventory for 1999 estimated 454 tons per year of perchloroethylene emissions from dry cleaners in New Jersey.

Unfortunately, however, not all dry cleaning systems are well-operated and maintained, meaning that the actual emissions are likely to be higher. Investigations by the Department, and the County Environmental Health Act (CEHA) agencies contracted with the Department to perform inspections, indicate that there are frequent operational and maintenance issues that are likely to result in higher perchloroethylene emissions. Since not all dry cleaning systems are well operated and maintained continuously, actual emissions are likely to be higher than 467 tons per year.

A study performed by the California Air Resources Board, titled “California Dry Cleaning Industry Technical Assessment Report,” dated October, 2005, includes estimates of actual emissions from dry cleaning facilities in California. (CARB, Oct. 2005) This study shows

that for the 4670 perchloroethylene dry cleaning systems in California, there are 222,000 gallons of perchloroethylene emitted per year. This equates to approximately 642 pounds per year per perchloroethylene dry cleaning system. Using this same emission rate, the approximately 1700 perchloroethylene dry cleaning systems in New Jersey would emit approximately 545 tons of perchloroethylene per year. Therefore, it is estimated that the actual perchloroethylene emissions in New Jersey from dry cleaning is at least 454 tons per year and possibly as high as 545 tons per year.

The proposed rules will result in the reduction, and ultimate elimination of the emissions of perchloroethylene from dry cleaning systems into the environment. The Department estimates that annual perchloroethylene emissions from dry cleaning systems will be cut in half by 2012, and will drop to zero by 2021 when all perchloroethylene dry cleaning systems are phased out.

Estimated total perchloroethylene emissions from all sources, other than dry cleaners, covered by air pollution permits is approximately seven tons per year. There are also significant emissions of perchloroethylene from currently non-regulated sources, such as some consumer products, including automotive maintenance products such as brake cleaners. Rules to eliminate the use of perchloroethylene from these consumer products were proposed on November 5, 2007 (39 N.J.R. ____).

The proposed rules will result not only in a substantial decrease in perchloroethylene emissions, but also a small increase in the emission of volatile organic compounds (VOCs). Based on CARB's "California Dry Cleaning Industry Technical Assessment Report," if the entire perchloroethylene dry cleaning industry in California were to switch to a hydrocarbon dry cleaning process, the statewide increase in VOC emissions in California would be approximately 1.7 tons per day. (CARB, Oct. 2005) Since California has 4670 perchloroethylene dry cleaning systems compared to New Jersey's 1700 perchloroethylene dry cleaning systems, it is estimated that if all perchloroethylene dry cleaning systems in New Jersey were changed to hydrocarbon technology, New Jersey would have an increase in VOC emissions of less than 0.7 tons per day, or a total of 225 tons per year Statewide. Based on dry cleaning facilities that have already chosen non-perchloroethylene technologies, it is expected that some dry cleaning facilities will choose to install technologies other than the hydrocarbon technologies, such as siloxane or wet cleaning. Therefore the actual increase in VOC emission would be less than 0.7 tons per day. This impact is negligible and will be more than offset by the reduction in health risks due to the reduced emissions of perchloroethylene.

There are other environmental concerns involving the use of perchloroethylene in dry cleaning systems, in addition to air pollution related issues. As discussed above, the perchloroethylene that is not emitted into the environment from a dry cleaning machine is recycled, and eventually disposed of as hazardous waste. Because most dry cleaners are "exempt small generators," they are not required to monitor, record, and prepare manifests for their perchloroethylene containing waste streams. Consequently, there is the possibility that some dry cleaning facilities are improperly disposing of perchloroethylene. This can result in perchloroethylene waste being improperly mixed with municipal waste, resulting in perchloroethylene emissions from solid waste handling systems, including landfills.

Perchloroethylene waste may also be discharged to publicly owned treatment works (POTW), resulting in air emissions of perchloroethylene from the wastewater treatment process. Perchloroethylene is found in wastewater processed by POTW, some of which is emitted into the air. Perchloroethylene may also be discharged to groundwater or surface water as a result of accidental spills or illegal dumping, in order to avoid hazardous waste disposal costs.

Eliminating the use of perchloroethylene in dry cleaning systems will likely have a comparable reduction in the generation of perchloroethylene containing hazardous waste, and a reduction in the improper handling and disposal of perchloroethylene containing waste.

Nationwide there are numerous site remediation projects dealing with perchloroethylene contamination from dry cleaning systems . Several states have joined a coalition to share data concerning such remediation projects. Currently there are over 120 projects listed on the State Coalition for Remediation of Drycleaners website at http://www.drycleancoalition.org/profiles/. Although New Jersey is not a member of this coalition, the existence of this coalition shows that perchloroethylene contamination from dry cleaning systems is a national problem.

In New Jersey, perchloroethylene has been found in groundwater in over 240 site remediation projects monitored by the Department. In many cases, the perchloroethylene is traced back to a dry cleaning operation. The contamination has resulted in the closure of the dry cleaning operation. (NJDHSS, Tops 'N' Town Cleaners, 2006)

Discharges of perchloroethylene affect not only air and groundwater, but the areas surrounding co-located dry cleaning facilities. Studies done by DHSS show that perchloroethylene concentrations in co-located dry cleaning facilities can also result in unacceptable health risks to adjacent occupied areas. The health risk for young children exposed to a high level of perchloroethylene is much higher than for a healthy adult. (NJDHSS, 2006) The Department and DHSS are aware of several incidents in the past year in which a perchloroethylene dry cleaning facility adjacent to a child care facility resulted in unacceptable levels of perchloroethylene within the child care facility. At least one day care center was ordered closed due to the high levels of perchloroethylene from a nearby perchloroethylene dry cleaning facility. Two dry cleaning facilities were ordered to cease operations, and air pollution permits for dry cleaning systems have been denied due to levels of perchloroethylene in nearby child care facilities. As a result of incidents involving dry cleaning facilities and other sources of contamination effecting child care facilities, legislation was adopted, with input from the Department and DHSS, limiting the siting of child care centers near dry cleaners and other sources of unacceptable health risk for the attending children, and requiring child care facilities to certify they are not being impacted by such contamination (52:27D-130.4 and 5, P.L. 2007, c. 1).

Exposure to perchloroethylene may result in both cancer and non-cancer health effects. According to the CARB's Initial Statement of Reasons for Proposed Rulemaking, for perchloroethylene dry cleaning operations in California "the average population weighted cancer risk from exposure to ambient levels of Perc is estimated between 1 and 2 chances per million. After full implementation of the proposed Perc [Airborne Toxic Control Measure] and with other Perc measures in place, the average potential statewide cancer risk from exposure to ambient Perc levels is expected to drop below 1 chance per million." In California's urban areas, the cancer risk for residents living near perchloroethylene dry cleaning operations "is estimated to range between approximately 75 chances per million at 20 meters and 3 chances per million at 100 meters." For the state wide average perchloroethylene concentration in California "the residential receptor potential cancer risk is estimated to range between approximately 42 chances per million at 20 meters and 2 chances per million at 100 meters." (CARB, 2006)

Due to the higher population density in New Jersey, the health effects are likely to be greater. In addition, ambient levels of perchloroethylene are slightly higher in New Jersey, with typical background values of perchloroethylene in New Jersey of 0.15 $\mu g/m^3$, and has been

monitored to be as high as 0.59 $\mu g/m^3$ in some New Jersey urban areas. In California, measurements of perchloroethylene have averaged below approximately 0.1 $\mu g/m^3$ since 2001. Therefore, the cancer risk, as well as the non-cancer heath risks, may be significantly higher for New Jersey residents than for California residents. Based on the above, the average potential Statewide cancer risk from exposure to ambient perchloroethylene levels is expected to drop from near two chances per million to less than one chance per million, resulting in a potential reduction of seven to 14 fewer cancer cases per year from perchloroethylene dry cleaning operations.

Federal Standards Analysis

Executive Order No. 27(1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c.65) require State agencies that adopt, readopt or amend any State rule or regulation that exceeds any Federal standards or requirements to include in the rulemaking document a Federal standards analysis.

The Department compared the proposed new rules and amendments at N.J.A.C. 7:27-17 to analogous Federal regulations, namely 40 CFR Part 63 Subpart M, "Standards for Hazardous Air Pollutants (NESHAP) for Perchloroethylene Dry Cleaning Facilities," including the USEPA adopted amendments to address the residual risk related to perchloroethylene dry cleaning facilities, adopted July 27, 2006 at 71 Fed. Reg. 42724 July 27, 2006. The current Federal requirements for Perchloroethylene Dry Cleaning Facilities include 40 CFR Parts 63.320 through 324.

The Federal rules effective prior to December 21, 2005, have been incorporated into all permits issued by the Department for perchloroethylene dry cleaning facilities. Proposed N.J.A.C. 7:27-17.10(b)1, (c)1, and (d)1 specifically require facilities to comply with the Federal rules regarding perchloroethylene dry cleaning facilities.

The Department's proposed rules exceed the Federal requirements in several aspects. The Department's proposed rules require all existing third generation dry cleaning systems to be upgraded to fourth generation dry cleaning systems or to install a vapor barrier enclosure or install a non-perchloroethylene alternative by January 1, 2010. The Federal rules require all new perchloroethylene dry cleaning facilities to utilize fourth generation dry cleaning systems, but would not require the upgrade or replacement of existing third generation dry cleaning systems.

The proposed rules ban new perchloroethylene dry cleaning facilities from being installed in a building with a residence, which provision is similar to the Federal rule. The Department proposes to prohibit all dry cleaning facilities co-located with residences from using or emitting perchloroethylene as of July 27, 2009; whereas the Federal rules require such dry cleaning facilities to cease using perchloroethylene as of December 21, 2020. The Federal rules require vapor barrier enclosures to be installed on co-residential dry cleaning facilities that were put in place between December 21, 2005 and July 27, 2006.

The Department proposes to eliminate the use or emission of perchloroethylene in dry cleaning systems as of December 31, 2020. The Federal rules do not include such a prohibition on the use or emission of perchloroethylene.

Lastly, the Department proposes to prohibit the spraying of perchloroethylene contaminated waste into the open air for disposal. Federal rules for the storage, treatment, and disposal of hazardous waste also prohibit this practice. (See 40 CFR Parts 260 through 262.)

As discussed in the Social Impact, above, the proposed rules could result in a reduction of seven to 14 cancers per year in New Jersey, at a total cost of less than $2,000,000 per year to

implement. In addition, there are additional non-cancer related health benefits, resulting in a reduction in health care costs from exposure to perchloroethylene.

In addition, eliminating perchloroethylene from dry cleaning systems will prevent future soil and ground water contamination from dry cleaning operations. Perchloroethylene has been found in groundwater in over 250 site remediation projects as of the Publicly Funded Cleanups Site Status Report 2003, and monitoring and remediating such contaminated site frequently cost many thousands of dollars, as discussed in the Environmental Impact, above. Consequently, the proposed rules have the potential to save millions of dollars in future remediation projects.

In light of the environmental and social benefits that are anticipated from the proposed rules, taking into account the cost to the regulated industry, the Department has determined that it is appropriate and necessary that the proposed rules be more stringent than the Federal rules, in order to protect the citizens of New Jersey.

Jobs Impact

The Department anticipates that the proposed new rules and amendments will have no overall impact on employment in the State. Over the 13 years that the proposed rules provide for full implementation, there should be little or no change to the number of dry cleaning facilities that provide dry cleaning services to their customers in New Jersey as a result of the proposed rules. The number of dry cleaning facilities is consumer-driven. Most dry cleaning facilities employ six or fewer employees, and often two or fewer (usually the owner and spouse or other family member). (USEPA, Basic Information, 2006)

As a result of this proposal, it is expected that most dry cleaning facilities will have a less than $1,000 increase in annual operating costs, few if any would see increases of $5,000 per year, and some dry cleaning facilities may see a reduction in annual operating costs, primarily due to lower waste disposal costs.

The proposed rules could result in some additional costs to operate a dry cleaning facility in New Jersey; however, the Department does not anticipate that the rules will impact overall employment.

Agriculture Industry Impact

Pursuant to P.L. 1998, c. 48, the Department has evaluated this rulemaking to determine the nature and extent of impact of the proposed new rules and amendments on the agriculture industry. The Department anticipates that the proposed new rules and amendments will not have an impact on the agriculture industry in New Jersey.

Regulatory Flexibility Analysis

The proposed new rules and amendments affect over 90 percent of the dry cleaning industry in New Jersey, all of which qualify as small businesses. A small business is one that is independently owned and operated, not dominant in its field, and that employs fewer than 100 full time employees. (N.J.S.A. 52:14B-16 et seq.)

The cost to the small businesses affected by the proposed new rules and amendments is discussed in the Economic Impact and Jobs Impact, above. While this proposal will result in some additional costs to the dry cleaning industry, it is not expected to have any significant impact to employment in the dry cleaning industry. Many facilities may need to purchase and install new dry cleaning systems, or install a vapor barrier enclosure. Most of these facilities will

need to hire a contractor to install the systems or enclosure. Most facilities will also need to purchase and install a spill proof vapor tight fitting, which could require a contractor for installation. The Department does not propose to add recordkeeping or reporting requirements, beyond those already required by the Federal MACT rule. In order that the perchloroethylene dry cleaners in New Jersey will have time to adjust to the proposed requirements, and to minimize the impact of the proposed rules on the dry cleaning industry, the Department proposes to phase in implementation over a 13 year period. Also, to reduce the impact on the dry cleaning industry, facilities with third generation dry cleaning systems are being given the flexibility to either purchase a new fourth generation dry cleaning system or install a vapor barrier enclosure, depending on which is more cost effective for the specific situation, rather than being required to immediately switch to non-perchloroethylene technology.

In light of the fact that most dry cleaners in New Jersey are small businesses, and the Department's intention in proposing the rules is to phase out the use of perchloroethylene in dry cleaning systems, it is not possible for the Department to further limit the impact of the rules on small businesses.

Smart Growth Impact

Executive Order No. 4 (2002) requires State agencies that adopt, amend or repeal any rule to include in the rulemaking document a Smart Growth Impact statement that describes the impact of the proposed rule on the achievement of smart growth and implementation of the State Development and Redevelopment Plan (State Plan). The Department has evaluated this rulemaking to determine the nature and extent of the impacts that the proposed amendments will have on smart growth and the implementation of the State Plan, and has determined that the proposed rules will have no such impact.

Since the rules proposed will encourage protection of air quality, the rules support the conservation and environmental protection goals and policies underlying the State Plan.

References:

California Air Resources Board (CARB), titled "California Dry Cleaning Industry Technical Assessment Report" dated October, 2005, available at http://www.arb.ca.gov/toxics/dryclean/finaldrycleantechreport.pdf

California Environmental Protection Agency Air Resources Board (CARB) Dry Cleaning Program, web site can be found at: http://www.arb.ca.gov/toxics/dryclean/dryclean.htm and specifically the June 2006 notice from CARB which can be found at: http://www.arb.ca.gov/toxics/dryclean/drycleanadvisornotice.pdf and the September 19, 2006 draft rule language which can be found at: http://www.arb.ca.gov/toxics/dryclean/workmeet.htm#4

California Environmental Protection Agency Air Resources Board (CARB), December 2006 Initial Statement of Reasons for Proposed Rulemaking, which can be found at: http://www.arb.ca.gov/regact/2007/perc07/isor.pdf

California Environmental Protection Agency (CEPA), Office of Environmental Health Hazard Assessment, Air Toxic Hot Spots Program Risk Assessment Guidelines, Part II - Technical Support Document for Describing Available Cancer Potency Factors, May 2005

IARC, 1995. Monographs on the evaluation of carcinogenic risks to humans. Volume 63. Dry Cleaning, Some Chlorinated Solvents and Other Industrial Chemicals.
ISBN 9283212630. Geneva, Switzerland. Available at the IARC website at http://www.iarc.fr.), specifically at http://monographs.iarc.fr/ENG/Monographs/vol63/volume63.pdf.

New Jersey Department of Environmental Protection (NJDEP) reports for "Publicly Funded Cleanups Site Status Report 2001," available at:
http://www.state.nj.us/dep/srp/publications/site_status/2001/pdf/2001site_status.pdf
Publicly Funded Cleanups Site Status Report 2002, available at:
http://www.state.nj.us/dep/srp/publications/site_status/2002/pdf/2002site_status.pdf
Publicly Funded Cleanups Site Status Report 2003, available at:
http://www.state.nj.us/dep/srp/publications/site_status/2003/pdf/2003_site_status.pdf

NJDEP memorandum titled "Generic Dry Cleaner Risk Assessment for Tetrachloroethylene (Perchloroethylene) Emissions from 3rd and 4th Generation Machines," to Lou Mikolajczyk, Dated December 19, 2005. Revision dated February 14, 2007.

New Jersey Department of Health and Senior Services (NJDHSS), Health Consultation, Tops 'N' Town Cleaners Site, Manalapan, Monmouth County, New Jersey, EPA Facility ID: NJR000008193, dated March 30, 2006

South Coast Air Quality Management District in California (SCAQMD), known as Rule 1421 - Control of Perchloroethylene Emissions from Dry Cleaning Systems. Rule 1421 was amended on December 6, 2002, can be found at: http://www.aqmd.gov/rules/reg/reg14/r1421.pdf .

State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO) letter to USEPA dated March 23, 2006, signed by Robert Colby and Vinson Hellwig, to comment on the USEPA dry cleaner proposal dated December 21, 2005.

USEPA, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, 40 CFR Part 63, [OAR-2005-0155; FRL-] RIN 2060-AK18, "Basic Information" last updated 3/6/2006 and available at http://www.epa.gov/air/drycleaningrule/basic.html.

USEPA, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, Fact Sheet - Proposed Amendments to Air Toxics Standards for Perchloroethylene Dry Cleaners, last updated March 6, 2006, available at http://www.epa.gov/air/drycleaningrule/fs20051128.html.

USEPA, Perchloroethylene Dry Cleaners Refined Human Health Risk Characterization, November, 2005, available at http://www.epa.gov/air/drycleaningrule/technical.html .

USEPA, Technology Transfer Network (TTN) Air Toxics Website fact sheets for Tetrachloroethylene, available at http://www.epa.gov/ttn/atw/hlthef/tet-ethy.html

Full text of the proposal follows (additions indicated in boldface **thus**):

N.J.A.C. 7:27-17 Control and Prohibition of Air Pollution by Toxic Substances
7:27-17.1 Definitions
The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise.
…
"Closed-loop machine" means dry cleaning equipment in which washing, extraction, and drying are all performed in the same single unit (also known as dry-to-dry) and which recirculates perchloroethylene laden vapor through a control system with no exhaust to the atmosphere during the drying cycle.

"Co-located" means a dry cleaning facility that is not located in a stand alone building and that shares an area of a single building or structure with other tenants or occupants (residential or commercial entities) which are not part of the dry cleaning facility or the services offered by the dry cleaning facility.
…

"Dry cleaning facility" means a facility with one or more dry cleaning systems that are located on one or more contiguous properties within the State, in actual physical contact or separated solely by a public roadway, or other public right-of-way, and are owned or operated by the same person (or by persons under common control). A dry cleaning facility encompasses all services and/or products made available to the facility's customers including, but not limited to, dry cleaning, tailoring, shoe repair, laundry, rug cleaning, drapery cleaning, new drapery sales, smoke and fire damage restoration, tuxedo rental, lint rollers, and replacement buttons.

"Dry cleaning system" means any equipment, machine, device, or apparatus used to dry clean materials. A dry cleaning system may include, but is not limited to, a transfer machine, vented machine, converted machine, closed-loop machine, reclaimer, or drying cabinet. A dry cleaning system includes the following equipment, devices, or apparatus associated with the dry cleaning process: filter or purification systems; waste holding, treatment, or disposal systems; cleaning solvent supply systems and system storage tanks; dip tanks; pumps; gaskets; piping, ducting, fittings, valves, or flanges that convey contaminated air; and control systems.
…
"Fourth generation dry cleaning system" means a dry cleaning system using perchloroethylene in a closed-loop machine with a primary control system and a secondary control system.
…
"Perchloroethylene dry cleaning" or " perchloroethylene dry cleaning system" means a dry cleaning system that uses perchloroethylene in the process to remove soil, grease, paint,

and other unwanted substances from materials; or a process to remove residual perchloroethylene from previously cleaned materials.

…

"Primary control system" means a refrigerated condenser, or an equivalent closed-loop vapor recovery system

…

"Refrigerated condenser" means a closed-loop vapor recovery system into which perchloroethylene vapors are introduced and then trapped by cooling below the dew point of the perchloroethylene.

"Residence" means any dwelling or housing in which people reside, excluding short-term housing that is occupied by the same person for a period of less than 180 days (such as a hotel room).

…

"Secondary control system" means a device or apparatus that reduces the concentration of perchloroethylene in the recirculating air at the end of the drying cycle, beyond the level achievable with a refrigerated condenser alone, and is designed to reduce the perchloroethylene concentration below 300 ppm for equipment manufactured after January 1, 2002, or below 500 ppm for equipment manufactured before January 1, 2002.

"Stand alone building" means an architecturally independent building structure, not in use by or designed for ownership, rental or lease by multiple, independently owned and/or operated tenants.

…

"Third generation dry cleaning system" means a dry cleaning system using perchloroethylene in a closed-loop machine with a primary control system.

…

"Vapor balance system" means a system for controlling vapor losses during the transfer of a VOC liquid from one vessel to another vessel or tank by means of the simultaneous counter-transfer of displaced vapors from the receiving vessel to the vessel supplying the liquid.

"Vapor barrier enclosure" means a room that encloses a dry cleaning system and is constructed of vapor barrier material that is impermeable to perchloroethylene.

…

"Wastewater treatment unit" means a device that treats perchloroethylene contaminated wastewater through the addition of thermal or chemical energy, or through physical action, such as carbon or another type of adsorbent filtration system.

…

7:27-17.4 Discharge of toxic substances

(a) – (c) (No change.)

(d) The provisions of (a) and (b) above shall not apply to dry cleaning systems.

7:27-17.10 Perchloroethylene dry cleaning facilities

(a) A perchloroethylene dry cleaning system located in a building with a residence shall not be operated unless it was installed before July 27, 2006.

(b) An owner or operator of a dry cleaning facility with a perchloroethylene dry cleaning system installed before July 27, 2006, that is located in a building with a residence, shall not use the existing perchloroethylene dry cleaning system unless:

1. The perchloroethylene dry cleaning system complies with Federal rules for perchloroethylene dry cleaning system, 40 CFR Part 63 Subpart M, as supplemented or amended, incorporated by reference; and

2. As of July 27, 2009, the owner or operator of the dry cleaning system shall neither use perchloroethylene in nor emit perchloroethylene from the dry cleaning system.

(c) On or before December 31, 2020, a dry cleaning facility that is co-located in a building without a residence shall not use an existing or install a new perchloroethylene dry cleaning system unless:

1. The perchloroethylene dry cleaning system complies with the Federal rules for perchloroethylene dry cleaning system, 40 CFR Part 63 Subpart M, as supplemented or amended;

2. The perchloroethylene dry cleaning system is at least third generation dry cleaning system; and

3. As of January 1, 2010, the system is at least fourth generation dry cleaning system, or the perchloroethylene dry cleaning facility has had a vapor barrier enclosure installed, in accordance with (i) below, around all dry cleaning systems that use a third generation dry cleaning system.

(d) On or before December 31, 2020, a stand alone dry cleaning facility shall not use existing or new perchloroethylene dry cleaning system unless:

1. The perchloroethylene dry cleaning system complies with the Federal rules for perchloroethylene dry cleaning system at 40 CFR Part 63 Subpart M, as supplemented or amended;

2. On and before December 31, 2009, the perchloroethylene dry cleaning system is at least a third generation dry cleaning system; and

3. On and after January 1, 2010, the perchloroethylene dry cleaning system is at least a fourth generation dry cleaning system, or the dry cleaning facility has had a vapor barrier enclosure installed, in accordance with (i) below, around each third generation dry cleaning system.

(e) On and after January 1, 2009, the owner or operator of a dry cleaning facility shall ensure that all additions of perchloroethylene to the dry cleaning system storage tanks shall be made through a spill proof attachment that includes a vapor balance system with the delivery vessel or container. The owner or operator of the dry cleaning facility shall ensure that connections between the delivery vessel or container and the dry cleaning system storage tank are designed to be drip-free, with fittings that are locked in place during filling operations.

(f) Perchloroethylene contaminated wastewater from a dry cleaning system shall not be treated with equipment such as misters, or other devices that "atomize," "spray" or "fog" the perchloroethylene contaminated wastewater. Perchloroethylene contaminated wastewater from a dry cleaning system shall be:

1. Treated as hazardous waste and removed for disposal by an approved hazardous waste transporter and sent to an approved hazardous waste treatment and storage facility in accordance with N.J.A.C. 7:26G;

2. Evaporated by heat after at least one cycle of physical separation and carbon filtration. Wastewater evaporators shall be operated to ensure that no liquid perchloroethylene or visible emulsion is allowed to vaporize; or

3. Discharged to a publicly owned treatment works (POTW) in accordance with N.J.A.C. 7:14A.

(g) Except as set forth in (b)2 above, on or after January 1, 2021, the owner or operator of a dry cleaning facility shall neither use perchloroethylene in nor emit perchloroethylene from any dry cleaning system.

(h) To comply with (c)3 and (d)3 above, a third generation dry cleaning system may be upgraded or modified to fourth generation dry cleaning system, provided:

1. The modified or upgraded third generation dry cleaning system meets the definition of fourth generation dry cleaning system;

2. If the secondary control system is provided by a manufacturer other than the same manufacturer as the third generation dry cleaning system, a performance test is conducted demonstrating that the equipment meets the definition of fourth generation dry cleaning system. The performance test shall be performed within one week after start up, and shall be certified in accordance with N.J.A.C. 7:27-1.39 and submitted to the Department within 30 days of start up at the following address:

New Jersey Department of Environmental Protection
Minor Source Compliance
402 East State Street
P.O. Box 407
Trenton, NJ 08625-0407

(i) A vapor barrier enclosure required by (c)3 and (d)3 above shall be equipped with a ventilation system that exhausts outside the building and is completely separate from the ventilation system for any other area of the building. The exhaust system shall be designed and operated to maintain negative pressure and a ventilation rate of at least one air change per five minutes. The vapor barrier enclosure shall be constructed of glass, plexiglass, polyvinyl chloride, PVC sheet 22 mil thick (0.022 in.), sheet metal, metal foil face composite board, or other materials that are impermeable to perchloroethylene vapor. The enclosure shall be constructed so that all joints and seams are sealed except for inlet make-up air and exhaust openings and the entry door.

N.J.A.C. 7:27A Subchapter 3. Civil Administrative Penalties and Requests for Adjudicatory Hearings

...

7:27A-3.10 Civil administrative penalties for violation of rules adopted pursuant to the Act

(a)-(l) (No Change)

(m) The violations of N.J.A.C. 7:27, whether the violation is minor or non-minor in accordance with (q) through (t) below, and the civil administrative penalty amounts for each violation are as set forth in the following Civil Administrative Penalty Schedule. The numbers of the following subsections correspond to the numbers of the corresponding subchapter in N.J.A.C. 7:27. The rule summaries for the requirements set forth in the Civil Administrative Penalty Schedule in this subsection are provided for informational purposes only and have no legal effect.

CIVIL ADMINISTRATIVE PENALTY SCHEDULE

1. through 16. (No Change)

17. The violations of N.J.A.C. 7:27-17, Control and Prohibition of Air Pollution by Toxic Substances, and the civil administrative penalty amounts for each violation, per source, are as set forth in the following table:

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
N.J.A.C. 7:27-17.2	Asbestos Surface Coating	NM	$10,000	$20,000	$50,000	$50,000
N.J.A.C. 7:27-17.3(a)	Registration	M	$500 [3]	$1,000 [3]	$2,500 [3]	$7,500 [3]
N.J.A.C. 7:27-17.3(c)	Remedial Measures	M	$500 [3]	$1,000 [3]	$2,500 [3]	$7,500 [3]
N.J.A.C. 7:27-17.3(d)	Implementation	M	$1,000 [3]	$2,000 [3]	$5,000 [3]	$15,000 [3]
N.J.A.C. 7:27-17.3(e)	Resubmittal	M	$1,000 [3]	$2,000 [3]	$5,000 [3]	$15,000 [3]
N.J.A.C. 7:27-17.4(a)	Discharge Criteria	M	$1,000	$2,000	$5,000 [3]	$15,000 [3]
N.J.A.C. 7:27-17.4(b)	Aerodynamic Downwash	M	$1,000	$2,000	$5,000 [3]	$15,000 [3]
		M				

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
N.J.A.C. 7:27-17.5(a)	Written Instructions		$500	$1,000	$2,500	$7,500
N.J.A.C. 7:27-17.5(b)	Training Program	M	$500	$1,000	$2,500	$7,500
N.J.A.C. 7:27-17.5(c)	Copies of Instructions	M	$500	$1,000	$2,500	$7,500
N.J.A.C. 7:27-17.5(d)	Submittal	M	$500	$1,000	$2,500	$7,500
N.J.A.C. 7:27-17.5(e)	Notification	M	$500	$1,000	$2,500	$7,500
N.J.A.C. 7:27-17.6(a)	Tests (Asbestos)	M	$1,000	$2,000	$5,000	$15,000
N.J.A.C. 7:27-17.6(c)1	Information (TXS)	M	$300	$600	$1,500	$4,500
N.J.A.C. 7:27-17.6(c)2	Monitoring (TXS)	M	$2,000	$4,000	$10,000	$30,000
N.J.A.C. 7:27-17.6(c)3	Sampling and Testing Facilities (TXS)	M	$2,000	$4,000	$10,000	$30,000
N.J.A.C. 7:27-17.10(a)	**Prohibition on New Co-residential perchloroethylene dry cleaning systems**	**NM**	**$10, 000 [3]**	**$25, 000 [3]**	**$50, 000 [3]**	**$50, 000 [3]**
N.J.A.C. 7:27-17.10(b)1	**Dry cleaning system Federal Standards**	**NM**	**$3,000**	**$6,000**	**$15,000**	**$45,000**
N.J.A.C. 7:27-17.10(b)2	**Eliminate emission of perchloroethylene**	**NM**	**$10, 000 [3]**	**$25, 000 [3]**	**$50, 000 [3]**	**$50, 000 [3]**
N.J.A.C. 7:27-17.10(c)1	**Dry cleaning system Federal Standards**	**NM**	**$3,000**	**$6,000**	**$15,000**	**$45,000**
N.J.A.C.	**At least third**	**NM**	**$10, 000 [3]**	**$25, 000 [3]**	**$50, 000 [3]**	**$50, 000 [3]**

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
7:27-17.10(c)2	generation dry cleaning system					
N.J.A.C. 7:27-17.10(c)3	At least fourth generation dry cleaning system or vapor barrier enclosure	NM	$10, 000 [3]	$25, 000 [3]	$50, 000 [3]	$50, 000 [3]
N.J.A.C. 7:27-17.10(d)1	Dry cleaning Federal standards	NM	$3,000	$6,000	$15,000	$45,000
N.J.A.C. 7:27-17.10(d)2	At least third generation dry cleaning equipment	NM	$10, 000 [3]	$25, 000 [3]	$50, 000 [3]	$50, 000 [3]
N.J.A.C. 7:27-17.10(d)3	At least fourth generation dry cleaning system or vapor barrier	NM	$10, 000 [3]	$25, 000 [3]	$50, 000 [3]	$50, 000 [3]
N.J.A.C. 7:27-17.10(e)	Spill proof delivery	NM	$3,000	$6,000	$15,000	$45,000
N.J.A.C. 7:27-17.3(f)	Wastewater disposal	NM	$3,000	$6,000	$15,000	$45,000
N.J.A.C. 7:27-17.10(g)	Eliminate emission of perchloroethylene	NM	$10, 000 [3]	$25, 000 [3]	$50, 000 [3]	$50, 000 [3]
[3] Revoke Certificate to Operate Under N.J.A.C. 7:27-8 (if applicable)						

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18. - 31. (No change.)