

GENERAL AIR QUALITY OPERATING PERMIT FOR PERCHLOROETHYLENE DRY CLEANERS

TECHNICAL SUPPORT DOCUMENT (TSD)

June 2015

I. GENERAL COMMENTS:

The Pima County Department of Environmental Quality (PDEQ) has drafted this General Permit to streamline the permitting process for the large number of sources which would otherwise require substantially similar individual source permits. This action shall reduce PDEQ's workload and afford decreased permitting timeframes and greater individual attention to other, more intricate aspects of the Air Quality Program. To obtain coverage under this General Permit, the Permittee shall obtain an *Authorization to Operate* (ATO). With the issuance of this General Permit, the Arizona Department of Environmental General Permit for Perchloroethylene (PCE) Dry Cleaners shall no longer be made available through PDEQ.

II. SOURCE DESCRIPTION

Sources covered by this General Permit include all Perchloroethylene (PCE) Dry Cleaning systems located at sources which do not otherwise require an air quality permit for other equipment or processes located or conducted on-site. Sources that otherwise require a permit shall be required to submit a complete permit application for and obtain an individual source permit from PDEQ.

The primary pollutant emitted from PCE Dry Cleaners is PCE itself, a Hazardous Air Pollutant (HAP). Fuel fired boilers associated with these sources characteristically emit insignificant quantities of NO_x, CO, SO_x, PM₁₀, and VOC. Sources covered by this General Permit shall emit less than major source thresholds on an individual basis for all criteria pollutants and HAPs by operational design or via *Synthetic Emissions Limitation* (SEL; i.e. limitation on annual consumption of PCE).

III. EMISSIONS ESTIMATES

Based on standard AP-42 emission factors the sum of all emissions from any source holding this General Permit shall be less than the following rates:

Pollutant	Emissions (tons/yr)
NO _x	Insignificant ¹
CO	Insignificant
SO _x	Insignificant
VOC	Insignificant
PM ₁₀	Insignificant
HAP's (combined)	<10 ²
HAP (individual)	<10

Based on these estimates, facilities covered by this General Permit will be a **Class II, Minor, Stationary Sources**.³

¹ Significance levels are as defined by 17.04.340.A as: NO_x – 40 tpy, CO – 100 tpy, SO_x – 40 tpy, VOC – 40 tpy, PM₁₀ – 15 tpy.

² 40 CFR 63.320(g)(1) & (2) defines a major source as follows: for sources with dry-to-dry machines only, a major source is one that consumes greater than 2100 gallons of PCE in any 12-consecutive month period; for those with transfer machines only or a combination of dry-to-dry machines and transfer machines, a major source is one that consumes greater than 1800 gallons in any 12-consecutive month period.

³ Minor status is achieved by actual PCE consumption or via SEL.

V. APPLICABLE REQUIREMENTS

- A. **NSPS** – No NSPS rules apply to applicable sources.
- B. **NESHAP** – 40 CFR 63 Subpart M - National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities
- C. **Pima County Code (PCC)** – The following PCC rules apply:
 - 17.16.040 Standards and Applicability (Including NESHAPS).
 - 17.16.130 Applicability.
 - 17.16.165 Standards of performance for fossil-fuel fired industrial and commercial equipment.
 - 17.16.400 Organic Solvents and Other Organic Materials.
 - 17.16.530 National Emission Standards for Hazardous Air Pollutants (NESHAP).

VI. PERMIT CONTENTS

- A. **Applicability** – New and Existing PCE Dry Cleaners located at sources which are not otherwise required to obtain a permit pursuant to Title 17 of the Pima County Code or 40 CFR 60, 61, or 63.

This is a general permit for dry cleaning machines using perchloroethylene (PCE) and operating in Pima County. Whereas all dry cleaning machines covered under this general permit are substantially similar, the regulations governing the operation and monitoring of these machines varies greatly. During the application process for this general permit, the Permittee supplied various pieces of information about the machines operated at the permitted facility, and the facility itself. This information was used to categorize each machine operated at the permitted facility into one of four categories.

The four categories of machines used in the permit were developed by PDEQ in order to clarify which regulations apply to each machine operated at the permitted facility. Depending on the age of the machine, and how much PCE is consumed at the facility, each machine operating at the facility could be subject to substantially different regulations. Some regulations, however, are the same for all machines and do not vary. The permit has been structured to reflect these facts.

This general permit is divided into nine parts. Parts 1, 7 and 8 apply to all machines regardless of age and facility PCE consumption. Parts 2 through 4 contain the separate sets of applicable regulations for each of the four categories of dry cleaning machines. Each dry cleaning machine operated at the permitted facility is regulated by one, and only one, of these four parts (it is possible for separate machines at the same facility to be subject to different sets of regulations.) Part 9 is a certificate of Authorization to Operate under this general permit. Each machine authorized to operate in Pima County at the permitted facility is listed in this part; along with which category each machine fits into and the corresponding parts of the permit which apply to each machine. See Part 9 of this permit to clarify which regulations apply to each machine operated at your facility.

Part 6 of the permit is the set of additional conditions that applies to any fossil fuel fired boilers or water heaters operated at the permitted facility. Any fossil fuel fired equipment authorized to operate at the permitted facility is included in the certificate of Authorization to Operate (Part 9.) The applicable parts of the permit that apply to the fossil fuel fired equipment are also enumerated in the certificate. If no fossil fuel fired equipment is permitted to operate at the facility, this is reflected by an absence of such equipment on the certificate of Authorization to Operate.

B. All PCE Dry Cleaning Equipment

The following standards apply to all PCE dry cleaners except for particular standards specifically identified as applicable or inapplicable.

1. Emission Limits and Standards

Standard	Discussion	Authority
II.A.1	Prohibition from consuming PCE at a rate greater than established in the ATO and so trigger additional requirements (i.e. those associated with becoming a major source or a large area source).	PCC 17.12.190
II.A.2	Requirement to keep the machine doors closed except when adding or removing articles.	40 CFR 63.322(c)
II.A.3	Requirement to operate machinery according to operational design.	40 CFR 63.322(d)
II.A.4	Requirement to conduct certain maintenance procedures.	40 CFR 63.322(i)
II.A.5	Requirement to store and transport VOCs & HAPs in such a way to minimize their emissions.	40 CFR 63.322(j) & PCC 17.16.400
II.A.6	Requirement for New Sources to eliminate emissions of PCE during transfer of articles from washers to dryers	40 CFR 63.322(b) (2)
II.A.7	Requirement to eliminate emissions during article transfer from washer to dryer and/or reclaimers for sources that are <i>not</i> identified as a “Small Area Source” in the ATO under “Source Classification.” Small area sources are specifically exempted by 63.320(c) & (d). Final compliance dates are specified in the ATO.	40 CFR 63.322(o) (3)
II.A.8	Requirement for source installed after 12/21/2005 <i>and</i> located in a building with a residence to eliminate PCE emission by the Final Compliance Date specified in the ATO.	40 CFR 63.322(o) (4)
II.A.9	Requirement to comply with applicable requirements in the event that a machine is relocated.	40 CFR 63.324(b) & PCC 17.16.235, 255, & 260.

2. Monitoring Requirements

Standard	Discussion	Authority
II.B.1	Requirement to weekly (or bi-weekly for small area sources) inspect dry cleaning machines for perceptible leaks.	40 CFR 63.322(k) & (l).
II.B.2	Requirement to conduct necessary maintenance and order and install necessary parts when deficiencies are discovered during regular inspections.	40 CFR 63.322(m)
II.B.3	Requirement to conduct monthly inspections with a halogenated hydrocarbon detector or PCE gas analyzer on the components listed in II.B.1.	40 CFR 63.322(o) (1)

3. Recordkeeping Requirements

Standard	Discussion	Authority
II.C.1	Requirement to maintain records of PCE consumption on a monthly and 12-consecutive month basis.	40 CFR 63.323(d), 324(d)(1), (2),
II.C.2	Requirement to maintain specific records (as applicable) to demonstrate compliance with multiple standards.	40 CFR 63.324(d) (3), (4), (5), (6)
II.C.3	Requirement to maintain on-site design specifications and operating manuals for each machine/system.	40 CFR 63.324(3)
II.C.4	Requirement to maintain records for a period of 5 years.	PCC 17.12.185.A. 4.b

4. Reporting Requirements

Standard	Discussion	Authority
II.D.1	Requirement to submit a notification of compliance status within 30 days after the Final Compliance Date specified in the ATO.	40 CFR 63.324(b)
II.D.2	Requirement to notify the Control Officer and implement necessary control devices and practices should the Permittee exceed the PCE consumption limit specified in the ATO.	40 CFR 63.324(c)
II.D.3	Requirement to notify the Control Officer of compliance status by 07/28/08.	40 CFR 63.324(f)

C. Additional Requirements for Refrigerated Condensers

The following standards apply to sources required to install and operate refrigerated condensers as identified in the ATO:

1. Emission Limits and Standards

Standard	Discussion	Authority
III.A.1	Requirement for specific installation of a refrigerated condenser.	40 CFR 63.322(a) (1) & 322(b)(1)
III.A.2	Specific requirements for refrigerated condensers.	40 CFR 63.322(e)
III.A.3	Specific requirements for refrigerated condensers installed on Existing Large Area Sources. For simplicity's sake, transfer machines at New Area Sources installed before 09/22/93 have been designated as Existing Large Area Sources as they have identical requirements.	40 CFR 63.622(f)
III.A.4	Requirement for specific use of a refrigerated condenser on sources installed after 12/21/05	40 CFR 63.322(o) (2)

2. Monitoring Requirements

Standard	Discussion	Authority
III.B.1	Requirement to conduct weekly inspections on refrigerated condensers.	40 CFR 63.323(a) (1)
III.B.2	Requirement to weekly monitor refrigerated condensers.	40 CFR 63.323(a) (2)
III.B.3	Requirement to promptly conduct necessary repairs in response to findings of III.B.1 & 2.	40 CFR 63.322(n)

IV. Additional Requirements for Carbon Adsorbers

The following standards apply to sources required to install and operate carbon adsorbers as identified in the ATO:

1. Emission Limits and Standards

Standard	Discussion	Authority
IV.A.1	Requirements for Large Existing Sources to who have elected to install carbon adsorbers.	40 CFR 63.322(a)(2)
IV.A.2	Requirements for New Area Sources constructed after 12/21/05 to install carbon adsorbers.	40 CFR 63.322(o)(5)(ii)(B).
IV.A.3	Requirement for operation and monitoring of carbon adsorbers.	40 CFR 63.322(g)

2. Monitoring Requirements

Standard	Discussion	Authority
IV.B.1	Monitoring requirements for sources with carbon adsorbers.	40 CFR 63.323(b)
IV.B.2	Special monitoring requirements for sources installed after 12/21/05.	40 CFR 63.323(c)
IV.B.3	Requirement to promptly conduct necessary repairs in response to findings of IV.B.1 & 2.	40 CFR 63.322(n)

V. Additional Requirements for Vapor Barrier Enclosures

The following standards apply to sources required to install and operate vapor barrier enclosures as specified in the ATO:

Standard	Discussion	Authority
V.A	Specific requirements for vapor barrier enclosures.	40 CFR 63.322(o)(5)(ii)(A)
V.B	Definition of a vapor barrier enclosure.	40 CFR 63.321
V.C	Requirement to conduct inspections required by II.B.3 of the Specific Conditions on a weekly basis. Vapor Barrier Enclosure is used as a surrogate for more complicated scheme of dates and source locations.	40 CFR 63.322 (o)(5)(ii)(C)

VI. Additional Requirements for Boilers

The following standards apply to fuel burning equipment operated in conjunction with dry cleaning operations as identified in the ATO:

Standard	Discussion	Authority
VI.A	Requirement to fire only those fuels allowed in ATO and prohibition from firing high sulfur fuel.	PCC 17.12.190 & 17.16.165.G.
VI.B	Opacity limit on boiler exhaust.	PCC 17.16.040.A & 16.16.130.B.

V. **Alternate Operating Scenarios** – There are no alternate operating scenarios associated with this General Permit.

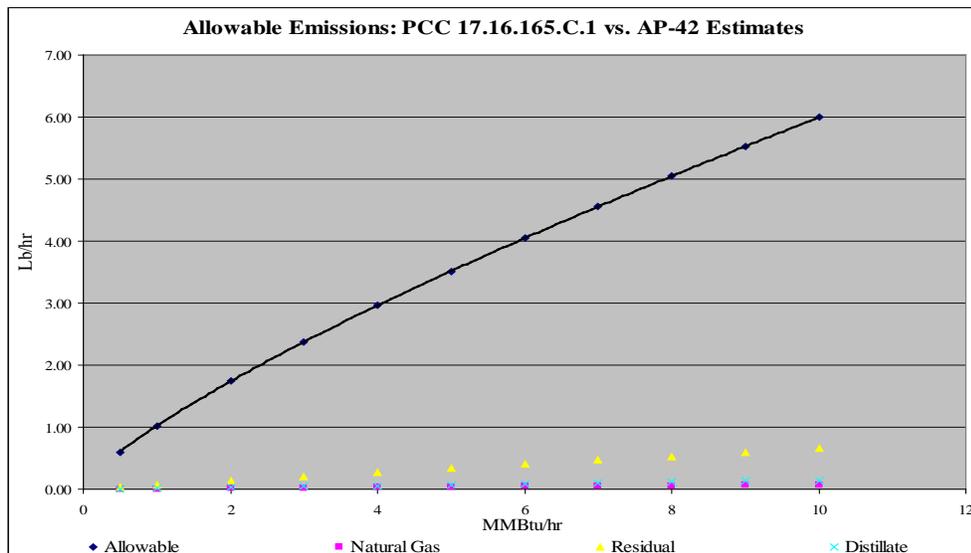
VI. **Miscellaneous Comments**

A. **Sulfur Dioxide:**

Compliance with the fuel limitation requirement of PCC 17.16.165.G (VI.A of the Specific Conditions) shall ensure compliance with the Sulfur Dioxide Standard of 17.16.165.E which limits the emission of SO₂ to 1.0 pound per million BTU heat input, when burning low sulfur fuel. The definition of low sulfur fuel (17.04.340.A. “Low Sulfur Fuel”) is fuel oil containing less than 0.9 percent sulfur by weight. AP-42 Appendix A, page A-5 states the heating value of Diesel Fuel is 137,000 BTU per gallon. Thus, 1 million BTU of heat input is equivalent to 7.3 gallons of diesel. At 7.05 lbs per gallon, 51.47 lbs of diesel will produce 1 million BTU. At 0.9% 51.47 lbs of Diesel contains 0.46 lbs of Sulfur. Combined with Oxygen to form SO₂ and assuming 100% of the sulfur in the fuel forms SO₂ this would yield 0.92 lb/MMBtu SO₂.⁴ Thus, low sulfur fuel oil will produce 0.92 lbs of SO₂ per million BTU of heat input. This is roughly 8% less than the prescribed 1.0 pound SO₂ per million BTU (PCC 17.16.165.G). Likewise, distillate, residual, and other such fuel oils range from 0.84 to 0.94 lbs of SO₂ per million BTU. Thus, it is not necessary to include the standard in the permit explicitly but, by reference in Attachment 1.

B. **Particulate Matter:**

PCC 17.16.165.C.1 limits the emissions of particulate matter from stationary rotating machinery. This rule has not been included in the permit as allowable emissions are well above potential emissions. The following Chart illustrates the fact:



AP-42 estimated emissions are demonstrably less than allowable emissions across the board. Therefore, it is not necessary to include the standard in the permit explicitly but, by reference in Attachment 1.

⁴ The atomic weight of SO₂ = 64; the atomic weight of S = 32. SO₂ = (S) x (SO₂/S);
(0.46 lb/MMBtu) x (64/32) = 0.92 lb SO₂

VII. IMPACTS TO AMBIENT AIR QUALITY

Major sources are excluded from this General Permit.

VIII. CONTROL TECHNOLOGY DETERMINATION

Control Technologies are not required for applicable sources.

IX. APPLICATION PACKAGE

A unique application package has been drafted in conjunction with this general permit to further expedite the process. This user-friendly package should serve to ensure a lower rate of incomplete determinations as well as provide the permit engineer with a less intensive, standardized approach to processing this type of source.

A. Instructions

Step 1 – Applicability Determination. The bases of this determination are 17.12.140.B.2.b and 40 CFR 63.320(a). The former states that sources subject to a standard or requirement under 112 of the Act is required to obtain an air-quality permit. The latter is a standard under 112 of the Act which defines applicability for dry cleaning facilities that consume PCE.

As this permit is intimately tied to 40 CFR 63 Subpart M, only dry cleaners who consume PCE are eligible for coverage. Systems that utilize petroleum solvents or other such solvents are ineligible for coverage under this general permit and may be required to obtain an individual source permit.

The Permittee is responsible for determining if other activities or equipment conducted or located on-site exclude the Source from coverage under this permit. Broadly, exclusions from applicability include other equipment or activities co-located on-site that are subject to a permitting standard under 17.12.140 via applicability to a particular standard or by potential emissions.

Finally, this general permit does not cover Class I sources, the applicant must be willing to accept an SEL if necessary.

Step 2 – STANDARD PERMIT APPLICATION FORM. This form has not been altered or tailored for the general permit.

Step 3 – Equipment List. The Equipment List has been altered from the Emission Sources Form included with the standard permit application package. This form has been tailored to request and provide only the necessary information for determining applicability, appropriate SELs, and any other information needed for generating a valid ATO and identifying appropriate monitoring and compliance standards after permit issuance.

Step 4 – Source Classification. Source classification is based primarily on date of construction, reconstruction, or relocation, and PCE consumption, and secondarily, on source type (i.e. dry-to-dry or transfer machine systems) and source location.

Note: Some classifications/distinction made in Subpart M have been grouped together for simplicity's sake. For example. Transfer machine systems constructed or reconstructed before 09/22/93 are grouped together as existing sources although Subpart M specifies that sources constructed or reconstructed after 12/09/91 are defined as new sources. These sources have been combined, however, in the GP because these sources are treated together in Subpart M (see classifications 2, 3, 5, & 6).

Existing Large Area Sources (classifications 4, 5, & 6) should indicate which control technology is currently installed on their equipment. Carbon adsorbers are only permitted if they were installed before 09/22/93.

Step 5 – PCE Consumption Limit. Rather than complicate and further diversify the classifications in Step 4, PCE consumption limits have been separated out. Theoretically, a facility might consist of an Existing Small Area Source side by side with a New Area Source, in such a case, if the facility desires to maintain the status of the former, the facility-wide consumption limit would have to be 140 or 200 gal/yr, as applicable; otherwise, this hypothetical source will be considered a combination of an Existing Large Area Source and a New Area Source.

Step 6 – Source Classification Summary. This is a condensation of the information declared in Form 2 (Equipment List) and the determinations made in Forms 3 (Source Classification) and 4 (PCE Consumption Limit). Boiler information has been excluded from this form as no significant determinations are made on the basis of boilers typically associated with dry cleaning operations of the size and scope covered by this permit.

Step 7 - Insignificant Activities Declaration. This form serves as a measure to help prevent applicants who might otherwise require an individual source permit from applying for and/or obtaining coverage under this general permit. In theory, such a source would declare as insignificant equipment or activities that would trigger an applicability requirement. Truly insignificant activities and equipment shall not be specifically listed in the permit or ATO.

Step 8 – Truth, Accuracy, & Completeness. This form contains standard truth, accuracy, and completeness language as well as a requirement for the Applicant to supplement this application when necessary/appropriate.

Step 9 – Mail the completed application package and the \$540 application fee. Check or money orders are payable to PDEQ. Payment can also be made by phone using a credit card (Visa or MasterCard only) by calling (520) 724-7400.