

## **TECHNICAL SUPPORT DOCUMENT**

### **I. GENERAL COMMENTS:**

#### **A. Company Information**

1. Loews Tucson Hotel Resort, Inc.
2. Physical Address: 7000 North Resort Drive  
Tucson, Arizona 85750

Mailing Address: (Same as physical address)

#### **B. Background**

Loews Tucson Hotel Resort (herein known as the facility) was first permitted in June 1985 for the operation of numerous natural gas fired equipment (boilers, clothes dryers and ovens) and a single diesel fired emergency generator. On February 18, 1997, the facility installed a dry cleaning machine and as a result became subject to additional permit conditions to control solvent and organic material emissions.

The initial permit (containing a one year permit term) was renewed annually until the facility received their first 5-year permit effective October 2, 1997.

This is an existing Class II, true minor stationary source for all pollutants.

#### **C. Attainment Classification**

The source is in an area that is in attainment for all pollutants.

### **II. SOURCE DESCRIPTION**

#### **A. Process Description**

The facility operates a dry cleaning system (dry-to-dry machine consuming <2100 gallons per year PERC), a diesel-fired generator (100 hp) and six natural gas-fired boilers (ranging from 1,350,000 BTU/hr to 3,780,000 BTU/hr).

#### **B. Air Pollution Control Equipment**

The process emissions from the dry cleaning machine vent are controlled using a refrigerated condenser.

### **III. REGULATORY HISTORY**

#### **A. Testing & Inspections**

There have been regular inspections to date and one recorded Notice of Violation (NOV); This NOV was issued for deficient federally enforceable recordkeeping requirement. The facility adequately resolved this deficiency and has since been in substantial compliance with the Pima County Code Title 17.

#### **B. Excess Emissions**

There are no reports of excess emissions.

#### IV. EMISSIONS ESTIMATES

The potential to emit calculations submitted by the source in the April, 2007 air quality application are verified correct.

The following emission rates are for reference purposes only and are not intended to be enforced by direct measurement unless otherwise noted in the Specific Conditions of the air quality permit #2371.

Facility Wide-Total Uncontrolled Potential To Emit (Tons/yr)

Source	Uncontrolled Potential To Emit (Tons/yr)					
	NO <sub>x</sub>	SO <sub>x</sub>	CO	VOC	PM <sub>10</sub>	HAP <sub>s</sub>
Facility Wide Emissions	18.9	0.9	7.5	1.5	1.3	0.1

#### V. APPLICABLE REQUIREMENTS

This is a new Class II synthetic minor for HAPs and a true minor source for all other pollutants.

**NESHAP** The following NESHAP rule applies to the source:

40 CFR Part 63 Subpart M: National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities

The following NESHAP Rule applies to the source on May 3, 2013:

40 CFR Part 63 Subpart ZZZZ: National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

**NSPS** No NSPS rules apply to the source.

The maximum capacity of each boiler is below 10 MMBtu and therefore the units are not subject to the NSPS Subpart Dc.

The generator is not subject to the NSPS Subpart IIII pursuant to 40 CFR 60.42000(a)(2)(i); The unit was manufactured before April 1, 2006 and not ordered, reconstructed or modified after July 11, 2005.

The generator is not subject to the NSPS Subpart JJJJ pursuant to 40 CFR 60.4230; the unit was not ordered, installed, modified or installed after June 12, 2006.

**Pima County Code (PCC)** –The following PCC rules apply

- 17.16.010 Local Rules and Standards; Applicability of more than one Standard
- 17.16.040 Standards and Applicability (Includes NESHAP)
- 17.16.130 Applicability
- 17.16.165 Standards of Performance for Fossil-Fuel Fired Industrial and Commercial Equipment
- 17.16.340 Standards of Performance for Stationary Rotating Machinery

## VI. PERMIT CONTENTS

### Applicability

The source is required to obtain a permit for the dry cleaning machine and Stationary Rotating Machinery (emergency generator) maintained at the facility, pursuant PCC 17.12.340.B.3.a; and is subject to regulation under Fossil-Fuel Fired Industrial and Commercial Equipment (boiler(s)) pursuant to PCC 17.16.165.A.

#### Category A: Dry Cleaning System

The regulations identified in this category only apply to Dry Cleaning Systems that consume Perchloroethylene (PCE). The primary pollutant emitted from PCE Dry Cleaners is PCE itself, a Hazardous Air Pollutant (HAP). The Permittee is prevented to emit significant quantities of HAP emissions by operational design (close loop system) and via Synthetic Emissions Limitation (SEL; i.e. limitation on annual consumption of PCE).

#### Category B: Generator

The conditions of the permit allow for continuous operation of the generator (24 hours a day, 7 days a week, 365 days a year; or otherwise stated as 8760 hours a year.)

After May 3, 2013, the generator will be limited to 100 hours per year for maintenance and testing only. The Permittee may operate the emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing.

#### Category C: Boilers

The conditions of the permit allow for continuous operation of boilers (24 hours a day, 7 days a week, 365 days a year; or otherwise stated as 8760 hours a year.)

### Category A: Dry Cleaning System

#### II. Specific Conditions

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

##### A. Required Emissions Control Device (Refrigerated Condenser)

Standard	Discussion	Authority
II.A.1	Requirement for specific installation of a refrigerated condenser.	40 CFR 63.322(a)(1) & 322(b)(1)
II.A.2	Specific requirements for refrigerated condensers.	40 CFR 63.322(b)(1), (e), (e)(1), (e)(2), (e)(3), PCC 17.12.185.A.3, 40 CFR 63.323(a), (a)(1)(i), (a)(1)(ii), (a)(2), (a)(2)(i), and (a)(2)(ii)

B. Standards for Operating Dry Cleaning Machinery

Standard	Discussion	Authority
II.B.1	Requirement to operate machinery according to operational design.	40 CFR 63.322(d)
II.B.2	Requirement to keep the machine doors closed except when adding or removing articles.	40 CFR 63.322(c)
II.B.3	Requirement to store and transport VOCs & HAPs in such a way to minimize their emissions.	40 CFR 63.322(j) & PCC 17.16.400.A
II.B.4	Requirement to conduct certain maintenance procedures.	40 CFR 63.322(i)

C. Monitoring of Emissions Control Device (Refrigerated Condenser)

Standard	Discussion	Authority
II.C	Specific monitoring requirements for the refrigerated condenser.	40 CFR 63.632 (a) 40 CFR 63.322 (b)(1), (e), (e)(1), (e)(2), (e)(3), PCC 17.12.185.A.3, 40 CFR 63.323(a), (a)(1)(i), (a)(1)(ii), (a)(2), (a)(2)(i), and (a)(2)(ii)

D. Maintenance, Leak Detection, and Repair

Standard	Discussion	Authority
II.D	Requirement for source to maintain the dry cleaning system according to the manufacturer's specifications and recommendations.	40 CFR 63.322(d)
II.D.2	Requirement to weekly inspect dry cleaning machines for perceptible leaks.	40 CFR 63.631 & 40 CFR 63.322(k)
II.D.3	Requirement to conduct monthly inspections with a halogenated hydrocarbon detector or PCE gas analyzer.	40 CFR 63.322(o) & 40 CFR 63.321
II.D.4	Requirement to conduct necessary maintenance and order and install necessary parts when deficiencies are discovered during regular inspections.	40 CFR 63.322(m)
II.D.5	Requirement to promptly conduct necessary repairs in response to findings of III.B.1 & 2.	40 CFR 63.322(n)
II.D.6	Generic recordkeeping requirement.	PCC 17.12.185.A.4

E. Recordkeeping

Standard	Discussion	Authority
II.E	Requirement to maintain specific records (as applicable) to demonstrate compliance with multiple standards.	PCC 17.12.185.A.4 40 CFR 63.624 (d)(5), (d)(3), (d)(4), (d), (d)(1), (d)(2), and 40 CFR 63.623(d)

F. Reporting Requirements

Standard	Discussion	Authority
II.F.1	Requirement to notify the Control Officer and implement necessary control devices and practices should the Permittee exceed the PCE consumption limit specified in the permit.	PCC 17.12.185.A.5, 40 CFR 63.324(c) And 40 CFR 63.320(i)
II.F.2	Facility Changes.	PCC 17.12.240, PCC 17.12.255, PCC 17.12,260

Category B: Generator

II. Specific Conditions

Standard	Discussion	Authority
II.A.	Operational Limitation The conditions of the permit allow for continuous operation of the generator (24 hours a day, 7 days a week, 365 days a year; or otherwise stated as 8760 hours a year.)	PCC 17.12.185.A
II.B	Opacity Standard. By law, the Permittee cannot allow any equipment under his control to emit effluents (such as exhaust from a generator) that exceed specific values of opacity (the degree to which light cannot pass through the plume of effluent/exhaust.) The value of opacity that cannot be exceeded is stated in the permit for the generator. The Permittee demonstrates compliance with this regulation to PDEQ by checking the exhaust from the generator under his control quarterly, and keeping complete records of these checks.	PCC 17.16.340.E, PCC 17.16.040, PCC 17.12.185.A.3, A.4 and A.5
II.C	Fuel Limitation Each type of fuel burned in equipment powered by combustion has a unique blend of constituents. When burned, each fuel results in the release of regulated pollutants to the atmosphere at characteristic levels. This permit is written to account for the fuel specified for the generator (diesel). Use of fuels other than those specified would result in different rates of pollutant emission. Therefore, the Permittee must only burn the designated fuels identified in the permit to remain in compliance with the conditions of this permit.	PCC 17.12.190.B
II.D	Additional Permit Conditions After May 3, 2013, the generator will be limited to 100 hours per year for maintenance and testing only. The Permittee may operate the emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing	40 CFR Part 63 Subpart ZZZZ

Category C: Boilers

II. Specific Conditions

Standard	Discussion	Authority
II.A	<p>Fuel Limitation Each type of fuel burned in equipment powered by combustion has a unique blend of constituents. When burned, each fuel results in the release of regulated pollutants to the atmosphere at characteristic levels. This permit is written to account for the fuel specified for the boiler (natural gas). Use of fuels other than those specified would result in different rates of pollutant emission. Therefore, the Permittee must only burn the designated fuels identified in the permit to remain in compliance with the conditions of this permit.</p>	<p>PCC 17.12.185.A.4, PCC 17.16.040 &amp; PCC 17.20.010</p>
II.B	<p>Opacity limit on boiler exhaust By law, the Permittee cannot allow any equipment under his control to emit effluents (such as exhaust from a boiler) that exceed specific values of opacity (the degree to which light cannot pass through the plume of effluent/exhaust.) The value of opacity that cannot be exceeded is stated in the permit for each piece of equipment. The Permittee demonstrates compliance with this regulation to PDEQ by checking the exhaust from the boilers under his control quarterly, and keeping complete records of these checks.</p>	<p>PCC 17.16.040, PCC 17.12.185.A.3, PCC 17.12.185.A.4, PCC 17.16.040 &amp; PCC 17.20.010</p>

III. Facility Changes

[PCC 17.12.240, PCC 17.12.255, PCC 17.12.260]

The Permittee retains the ability to modify operations at the facility. However, the permit covering the facility must reflect the current state of operations at all times. Therefore, provisions have been made in the Pima County Code to allow changes in operating permits to reflect new facility conditions. The proper procedure must be followed when making certain modifications to the facility, and the permit. See the rules referenced in the permit for enumeration of these requirements.

Additional Permit Conditions

Standard	Discussion	Authority
I	<p>Compliance with Permit Conditions This section of the permit identifies generic conditions that are applicable to all Class II and Class III sources.</p>	<p>PCC 17.12.185 A.7.a &amp;b, PCC 17.12.185.A.5 17.12.040, 17.12.185.A.9, and, PCC 17.12.510</p>
II	<p>The Permittee and Control Officer are provided means of revising, reopening, or terminating the permit for cause.</p>	<p>PCC 17.12.185.A.7.c</p>
III	<p>Duty to provide information The Permittee is required to furnish records to the Control Officer when requested.</p>	<p>PCC 17.12.165.G &amp; PCC 17.12.185.A.7.e</p>
IV	<p>Severability Clause This generic condition provides an avenue for the permit to be enforceable even if a part of the permit is found to be invalid.</p>	<p>PCC 17.12.185.A.6</p>

## VII. IMPACTS TO AMBIENT AIR QUALITY

Not a major source thus no studies are required.

## VIII. CONTROL TECHNOLOGY DETERMINATION

The air-perchloroethylene gas-vapor stream contained within the dry cleaning machinery is required to be routed through a refrigerated condenser or equivalent control device.

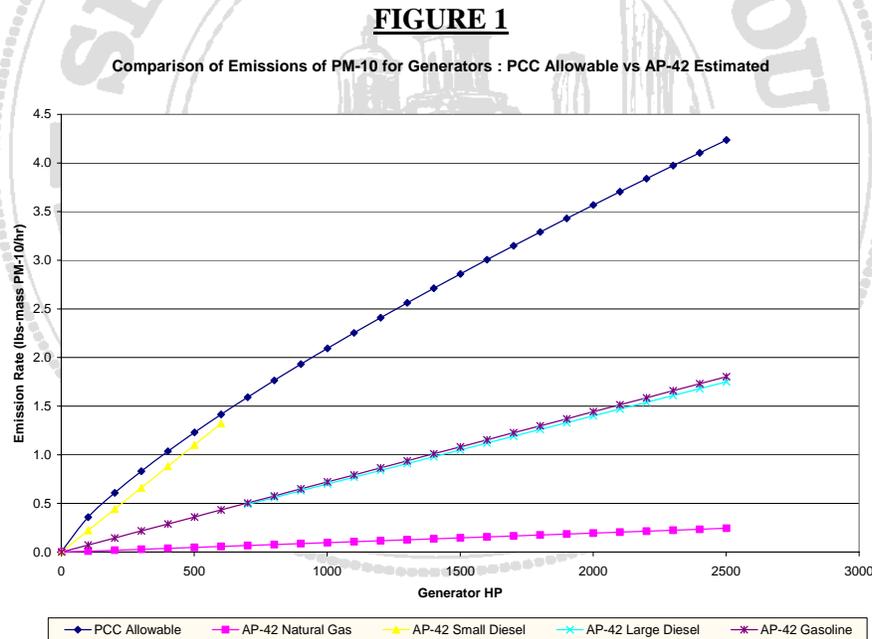
## IX. PREVIOUS PERMIT CONDITIONS

The following permit conditions have been omitted from this air quality permit renewal:

### Standards of Performance for Stationary Rotating Machinery

#### Generator Particulate Matter Standard (PCC 17.16.340.C)

PCC 17.16.340.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 EPA AP-42 estimated potential emissions. The chart in Figure 1 below illustrates the point.



**Figure 1)** Comparative Chart of Allowable Particulate Emissions Under Pima County Code, Title 17 and Estimated Potential Emissions based on EPA AP-42 Estimates for Stationary Rotating Machinery. EPA AP-42 estimated emissions are demonstrably less than allowable emissions; and with the exception of small diesel engines, AP-42 estimated emissions are significantly less than the allowable emissions<sup>1</sup>. Therefore, it is not necessary to include the standard in the permit explicitly, but by reference in Attachment 1.

<sup>1</sup> At 599 hp the allowable emissions rate is 1.41 lb/hr while AP-42 estimates 1.32 lb/hr

### Generator Sulfur Dioxide Standard (PCC 17.16.340.F)

Compliance with the fuel limitation requirements of PCC 17.16.340.H (Specific Condition II.B.1 and II.B.2 of Category B), shall ensure compliance with the Sulfur Dioxide Standard of PCC 17.16.340.F which limits the emission of SO<sub>2</sub> to 1.0 pound per million BTU heat input, when burning low sulfur fuel. The definition of low sulfur fuel (PCC 17.04.340.A. “Low Sulfur Fuel”) is fuel oil containing less than 0.9 percent sulfur by weight. EPA 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 SO<sub>2</sub>, and assuming 100% of the sulfur in the fuel forms SO<sub>2</sub>, this would yield 0.92 lb SO<sub>2</sub> per 1MMBtu.<sup>2</sup> Thus, low sulfur fuel oil will produce 0.92 lbs of SO<sub>2</sub> per million BTU of heat input. This is roughly 8% less than the prescribed 1.0 pound SO<sub>2</sub> per million BTU (PCC 17.16.340.F). Likewise, distillate, residual, and other such fuel oils range from 0.84 to 0.94 lbs of SO<sub>2</sub> per million BTU. Thus, it is not necessary to include the standards in the permit explicitly but, by reference in Attachment 1 of the permit.

The requirement in PCC 17.16.340.J to report daily periods when the fuel sulfur content of the fuel being fired exceeds 0.8% by weight has not been included in the permit as all fuel that is delivered to Pima County has an enforceable limit of 0.9% by weight. Any fuel over 0.8% but below 0.9% would not be an exceedance of any standard or limitation and so it would be burdensome for sources to report every time the fuel had a sulfur content above 0.8%. An excess emissions report would be submitted should the fuel exceed the 0.9% sulfur content standard. This permit will not allow the use of high sulfur diesel. Moreover, even though the sulfur content limit is 0.9% by weight, jet fuel, natural gas, gasoline and low sulfur diesel #2 delivered to Pima County consistently shows sulfur levels below this limit as shown in past records of fuel supplier specifications which verify sulfur content of the fuel fired. The limitations in II.B.1 and II.B.2 of Category B, will ensure high sulfur fuel is not fired allowing the omission of rule PCC 17.16.340.H as well. These rules are incorporated by reference in Attachment 1 of the permit.

### Standards of Performance for Fossil Fuel Fired Industrial and Commercial Equipment

#### Boiler Particulate Matter Standard (PCC 17.16.165.C)

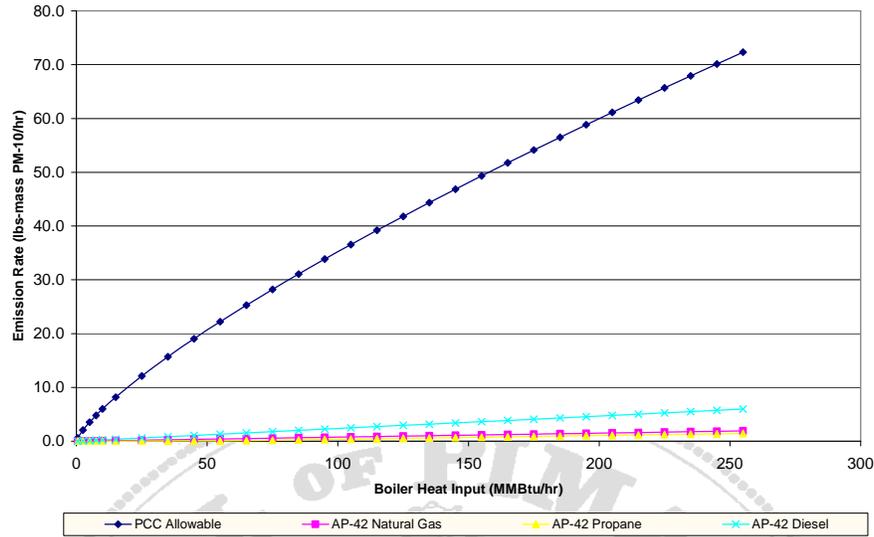
PCC 17.16.165.C limits the emissions of particulate matter from commercial and industrial fossil-fuel fired equipment (including but not limited to boilers.) This rule has not been included in the permit as allowable emissions are consistently over an entire order of magnitude higher than EPA AP-42 estimated potential emissions. The chart in Figure 2 below illustrates the point.

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<sup>2</sup> The atomic weight of SO<sub>2</sub> = 64; the atomic weight of S = 32. SO<sub>2</sub> = (S) x (SO<sub>2</sub>/S) (0.46 lb/MMBtu) x (64/32) = 0.92 lb SO<sub>2</sub>

**FIGURE 2**

Comparison of Emissions of PM-10 for Boilers: PCC Allowable vs AP-42 Estimated



**Figure 2)** Comparative Chart of Allowable Particulate Emissions Under Pima County Code, Title 17, and Estimated Potential Emissions based on EPA AP-42 Estimates for External Combustion Sources. Allowable emissions are consistently over ten times estimated potential emissions. Therefore, it is not necessary to include the standard in the permit explicitly, but by reference in Attachment 1.

Boiler Sulfur Dioxide Standard (PCC 17.16.165.E)

The determination to omit the sulfur dioxide standard (PCC 17.16.165.E) is identical to that decision made for omitting the sulfur dioxide standard associated with the generators. Compliance with the fuel limitation requirements of III.B.1 and III.B.2, of Category C, shall ensure compliance with the Sulfur Dioxide Standard of PCC 17.16.165.E. The limitations in III.B.1 and III.B.2 of Category C, will ensure high sulfur fuel is not fired allowing the omission of rule PCC 17.16.165.G as well. These rules are incorporated by reference in Attachment 1 of the permit.

**X MISCELLANEOUS COMMENTS:**

The Permittee retains the ability to modify operations at the facility. However, the permit covering the facility must reflect the current state of operations at all times. Therefore, provisions have been made in the Pima County Code to allow changes in operating permits to reflect new facility conditions. The specified procedure identified in PCC 17.12.240, PCC 17.12.255 or PCC 17.12.260 must be followed when making modifications to the facility that will affect air quality.