

**TUCSON AIRPORT AUTHORITY**

**AIR QUALITY PERMIT 962**

**TECHNICAL SUPPORT DOCUMENT (TSD)**

**I. GENERAL COMMENTS:**

**A. Company Information**

1. Source Name: Tucson Airport Authority
2. Source Address: 7250 S. Tucson, Boulevard

**B. Background**

The facility operates under the following industrial classification: Air Traffic Control and Other Airport Operations – SIC code 4581 (NAICS 488111 & 488119)

The facility currently operates under an older Class II air quality permit. It is considered a true minor source of all criteria pollutants.

This TSD was updated for the first renewal of the current 5 year permit. The renewal application was received on October 19, 2009, updated November 14, 2012 and on August 31, 2015. This renewal also includes information provided in subsequent minor permit revision applications received December 13, 2010 (962-2P) and September 28, 2012 (962-3P).

The TSD was revised to include a minor revision for the replacement of two boilers and the addition of two emergency generators to the facility (See Section VII, Table 1 of this TSD).

**C. Attainment Classification**

The Tucson Airport Authority (TAA) is located in an area that is in attainment for all pollutants.

**II. SOURCE DESCRIPTION**

**A. Process Description**

TAA operates the Tucson International Airport, located at 7250 S. Tucson Boulevard. TAA operates 3 small capacity (< 10 MMBtu/hr) boilers and hot water heaters, 5 large capacity (> 600 hp) emergency generators, and 3 small capacity (< 600 hp) emergency generators in support of its operations. In addition the TAA operates a small regulated garbage incinerator, and one gasoline dispensing facility (Tank farm D). TAA tenants operate two additional fuel dispensing facilities (Tank farm A/B and Rental Car).

The boilers and hot water heaters exclusively fire natural gas. The emergency generators are fired with diesel fuel.

**B. Operating Capacity and Schedule**

The operating schedule at the facility is not limited and the facility and equipment is permitted for operation 7/days/week, 24 hours a day, 365 days a year

**C. Air Pollution Control Equipment**

No post combustion air pollution control equipment is being operated on the equipment.

### III. REGULATORY HISTORY

TAA is currently in compliance with all Pima County Code requirements.

### IV. EMISSIONS ESTIMATES

TAA owns and operates installations and equipment that require a permit in accordance with Title 17. PCC 17.12.140.B.2 and 3.

Emission estimates for the equipment and operations at TAA were derived using emission factors from the following AP-42 tables:

Tables 3.3-1 thru 3 and 3.4-1 thru 4 (Diesel Industrial Engines and Large Stationary Diesel Engines) were used for emergency generator emission factors.

Tables 1.4-1 & 2 were used for the natural gas boilers.

Tables 2.1-2, 7, 9, and 12 were used for the incinerator.

Table 5.2-7 was used for the gasoline dispensing facilities

Federal requirements currently limit NSPS/ NESHAP “emergency” designated generators to operate no more than 100 hours of operation for maintenance and readiness testing and demand response purposes while there is no limit on hours of operation during true emergencies.

There are 6 units subject to NESHAP, Subpart ZZZZ, and two newer units subject to NSPS, Subpart IIII.

In accordance with the federal limits, the controlled facility-wide PTE has been calculated limiting each generator to 100 hours of operation for maintenance and readiness testing. Operation of the natural gas boilers and hot water heaters are not limited by the permit.

The following tables outline TAA’s controlled and uncontrolled potential to emit pollutants.

<i>Uncontrolled<sup>1</sup> Facility-Wide Potential Emissions of Pollutants (tons/yr)</i>										
Conventional or Criteria Air Pollutant								NSPS	HAPs	
PM <sub>2.5</sub>	PM <sub>10</sub>	PM	NO <sub>x</sub>	VOC	CO	SO <sub>2</sub>	Lead <sup>2</sup>	N/A	Total	Single
4.16	5.20	5.85	59.07	16.01	16.03	8.99	.02	N/A	2.61	< 2.61

<sup>1</sup> Boilers operating 8760 hr/yr, and Emergency generators operating 500 hours.

<sup>2</sup> These are estimates from AP-42, Tables 2.1-2.

<i>Controlled<sup>1</sup> Facility-Wide Potential Emissions of Pollutants (tons/yr)</i>										
Conventional or Criteria Air Pollutant								NSPS	HAPs	
PM <sub>2.5</sub>	PM <sub>10</sub>	PM	NO <sub>x</sub>	VOC	CO	SO <sub>2</sub>	Lead <sup>2</sup>	N/A	Total	Single
0.62	0.69	0.88	15.32	2.74	6.20	1.75	Neg.	N/A	0.37	< .37

<sup>1</sup> Emergency generator engine PTE is calculated on limited operation of the emergency generators (100 hr/year).

Boiler PTE is calculated on unlimited operation. Incinerator Operation based on a throughput limitation of 4000 lb/year of Regulated Garbage. GDF facilities operating with 94% Control efficiency for displacement losses using onboard vehicle refueling systems.

<sup>2</sup> These estimates are negligible.

### V. APPLICABLE REQUIREMENTS

## **40 CFR, Part 60 Standards of Performance for New Stationary Sources**

Subpart A	General Provisions
Subpart IIII	NSPS for Stationary Compression Ignition Internal Combustion Engines
Appendix A	Test Methods

## **40 CFR, Part 63 National E missions Standards for Hazardous Air Pollutants for Source Categories**

Subpart A	General Provisions
Subpart ZZZZ	NESHAP for Reciprocating Internal Combustion Engines 'RICE'
Subpart CCCCCC	NESHAP for Gasoline Dispensing Facilities

## **Pima County Code Title 17, Chapter 17.12 – Permits and Permit Revisions**

### **Article I – General Provisions**

17.12.010	Statutory Authority
17.12.020	Planning, Constructing, or Operating Without a Permit
17.12.040	Reporting requirements
17.12.045	Test methods and procedures
17.12.050	Performance tests
17.12.080	Permit Display or Posting

### **Article II – Individual Source Permits**

17.12.165	Permit application processing procedures for Class II and Class III permits
17.12.185	Permit contents for Class II and Class III permits
17.12.235	Facility Changes that require a permit revision
17.12.240	Procedures for certain changes that do not require a permit revision Class II or Class III
17.12.255	Minor Permit Revision
17.12.260	Significant Permit Revision
17.12.270	Permit Reopenings – Revocation and reissuance – Termination
17.12.350	Material permit condition

### **Article III – Emissions from Existing and New Nonpoint Sources**

17.16.070	Fugitive dust emissions standards for motor vehicles
17.16.080	Vacant lots and open spaces
17.16.090	Roads and Streets
17.16.100	Particulate materials
17.16.110	Storage Piles

### **Article VI – Individual Source Permits**

17.12.520	Fees related to Class II and Class III permits
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## **Pima County Code Title 17, Chapter 17.16 – Emission Limiting Standards**

### **Article I – General Provisions**

17.16.010	Local rules and standards; Applicability of more than one standard
17.16.020	Noncompliance with applicable standards
17.16.030	Odor limiting standards

### **Article II – Visible Emission Standards**

17.16.040	Standards and applicability (includes NESHAP)
17.16.050	Visibility limiting standard

## **Article II – Emissions from Existing and New Nonpoint Sources**

- 17.16.070 Fugitive dust emissions standards for motor vehicle operation
- 17.16.080 Vacant lots and open spaces
- 17.16.090 Roads and streets
- 17.16.100 Particulate Materials
- 17.16.110 Storage Piles

## **Article IV – New and Existing Stationary Source Performance Standards**

- 17.16.130 Applicability
- 17.16.165 Standards of performance for fossil-fuel fired industrial commercial equipment
- 17.16.170 Standards of performance for incinerators
- 17.16.340 Standards of performance for stationary rotating machinery
- 17.16.430 Standards of performance for unclassified sources

## **Article V – Emissions from New and Existing Portable Sources**

- 17.16.470 Roadway and site cleaning machinery

## **Pima County Code Title 17, Chapter 17.20 – Emissions Source Testing and Monitoring**

- 17.20.010 Source sampling, monitoring and testing
- 17.20.040 Concealment of emissions

## **Pima County Code Title 17, Chapter 17.24:**

- 17.24.020 Recordkeeping for compliance determination

## **VI. REQUIREMENTS SPECIFICALLY IDENTIFIED AS NON-APPLICABLE**

40 CFR Part 63 NESHAP Subpart JJJJJ has been identified as non-applicable since the boilers operate exclusively on natural gas. Should the boilers be modified to fire fuel oil and become subject to Subpart JJJJJ in the oil firing subcategory as defined in 40 CFR 63.11237 a significant permit revision will be required and compliance with Subpart JJJJJ will be required within 180 days of the effective date of the fuel switch.

**VII. PERMIT CHANGES and APPLICABILITY DETERMINATIONS**

**Table 1: Summary of Permit Actions within the current permit term.**

Date Received	Permit Action ID and Description
4/8/2019	962-0102P: Minor Revision to replace two boilers and add two emergency generators.

**A. Permit and Permit Summary**

The Specific Conditions have been organized into permit sections specific to the equipment and emission source categories at the facility. Many of the conditions in the previous permit may no longer apply and NSPS and NESHAP requirements apply to the generators. In addition conditions for the operation of a regulated garbage incinerator and gasoline dispensing facilities have been added to Sections 4 and 7. And a basic fugitive dust control plan has been added to Section 8 of the permit.

**B. General Applicability (Section 1):**

This Section of the permit provides a reference for the PCC and federal rules that apply to the facility and operations, and to help organize the permit sections. Specific Conditions relating to the applicability of permitted facility sources are included in Section 9.

**C. Facility-Wide Operations (Section 2):**

This Section incorporates the facility wide provisions applicable to all sources at the facility and is used to streamline provisions applicable to the specific sources and operations in other Sections of the permit. The facility-wide provisions include the following: voluntary limitations, general control standards, materials handling standards, odor limiting standard, opacity limit, visibility limiting standards, and asbestos requirements for demolition and renovation activities. This Section also includes the facility-wide provisions for monitoring, recordkeeping, reporting requirements, facility changes, and testing requirements.

**D. Fossil Fuel Fired Industrial and Commercial Equipment (Boilers and Heaters) (Section 3):**

This Section incorporates applicable PCC requirements and imposes restrictions for boilers, heaters, and fuel fired equipment to avoid certain requirements in PCC 17.16.165, 40 CFR Part 60, NSPS Subpart Dc and 40 CFR Part 63, NESHAP Subpart JJJJJ for certain classes of boilers. The specific applicability provisions for the boilers and heaters are included in Section 9 and indicated in the equipment list in Attachment 2.

The listed boilers and heaters in the equipment list are limited to firing natural gas. The specific definition for natural gas in this Section is taken from the NESHAP standard and is a broad definition that also includes LPG or Propane for use in temporary boilers or as an alternate fuel if required.

**E. Incinerator (Section 4):**

This Section contains requirements for an incinerator used by the Tucson Airport Authority (TAA) to incinerate *Regulated Garbage* that includes food scraps, galley refuse, food wrappers, packaging materials, agricultural commodities removed from international aircraft, and agricultural commodities confiscated by the U.S. Customs and Border Protection Agency (e.g. fruits and vegetables) that are required by law to be disposed of separately from domestic garbage to prevent bio-contamination.

The unit is subject to the new and existing stationary performance standards in PCC 17.16.170. The secondary chamber will be operated at temperatures above 1400 F in accordance with good modern practices to assure complete combustion and to minimize particulate and HAP emissions.

As a contraband and prohibited goods incinerator it is exempted from regulation under NSPS, Subpart EEEE as an ‘Other Solid Waste Incineration Unit’ in accordance with 40 CFR 60.6887(p) when operated by a government or similar agency such as TAA. In addition, the unit has an uncontrolled potential to emit using emission factors from AP-42, Section 2.1, Tables 2.1-2, 2.1-7, 2.1-9, and 2.1-12 of less than 3 tons of any regulated air pollutant.

Operating restrictions including federally enforceable permit conditions have been imposed on the incinerator that limit the amount of regulated garbage that can be incinerated including any segregated hospital/medical/infectious waste (if any). The conditions include the required recordkeeping to demonstrate compliance with the throughput limitations and Title 17 of the PCC. The controlled potential to emit waste combustor organics, metals, and acid gases using conservative AP-42 emission factors are orders of magnitude below the significance levels in PCC Title 17 using AP-42 emission factors.

**F. NESHAP for Stationary Reciprocating Internal Combustion Engines ‘RICE’ (Section 5):**

This Section incorporates specific federal emission limits and management practices for the operation of compression ignition engines subject to 40 CFR Part 63, Subpart IIII. This section applies to emergency generators at the facility constructed before June 12, 2006. The federal requirements limit emergency engines to less than 100 hours per calendar year for maintenance and testing and emergency demand response and less than 50 of the 100 hours per year for non-emergency situations if they qualify per 40 CFR 63.4211(f)(3)(i). There are no limitations for the use of the emergency generators for true emergencies.

**G. NSPS for Stationary Internal Combustion Engines ‘ICE’ (Section 6):**

This Section incorporates specific federal emission limits and requirements for installation and operation of compression ignition engines subject to 40 CFR Part 60, NSPS Subpart IIII. The federal requirements limit emergency engines to less than 100 hours per calendar year for maintenance and testing and emergency demand response and less than 50 of the 100 hours per year for non-emergency situations if they qualify per 40 CFR 60.6640(f)(4)(ii). There are no limitations for the use of the emergency generators for true emergencies.

**H. NESHAP for Gasoline Dispensing Facilities ‘GDF’ (Section 7):**

This Section incorporates specific federal requirements for Gasoline Dispensing Facilities (GDF). The facility is required to comply with specific requirements depending of the monthly throughput and to maintain records of the monthly throughput of the facilities. This Section incorporates County requirements for an annual inspection of gasoline storage tanks’ submerged fill devices and the vapor recovery system, all pumps, compressors, pipes, hoses, mechanical seals or other equipment that stores, handles, conveys, or control VOC’s and HAPs.

## **I. Emissions from New and Existing Nonpoint Sources (Section 8):**

This section of the permit contains fugitive dust control standards and describes reasonably necessary and feasible precautions for the control of fugitive dust and airborne particulate matter to comply with I.E and I.F of Section 2 of the permit. The Permittee is required to document corrective actions taken in accordance with II.A. of Section 2 of the permit to comply with this section.

## **J. Specific Applicability Provisions (Section 9):**

This Section of the permit includes specific conditions on the applicability of permitted facility sources to include provisions related to the source categories, affected facilities, equipment, emission sources, installations, activities and operations at the facility.

Applicable steam generating units (boilers) that comply with Section 3 of the permit shall be considered to be compliant with PCC 17.16.165. The facility is required to submit a significant revision if the facility desires to fire fuels other than those allowed in Section 3 of the permit.

## **VII. Periodic Monitoring**

This is a Class II permit and as such does not include the mandatory submittal of a semiannual summary report of required monitoring or an annual compliance certification to the Control Officer. The permit requires the facility to maintain the required periodic monitoring records on site. An annual report is required to be sent to the EPA electronically for each NESHAP emergency generator with a site rating of more than 100 brake HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for demand response in accordance with 40 CFR 63.6640(f)(4).

## **IX. Control Technology Determination**

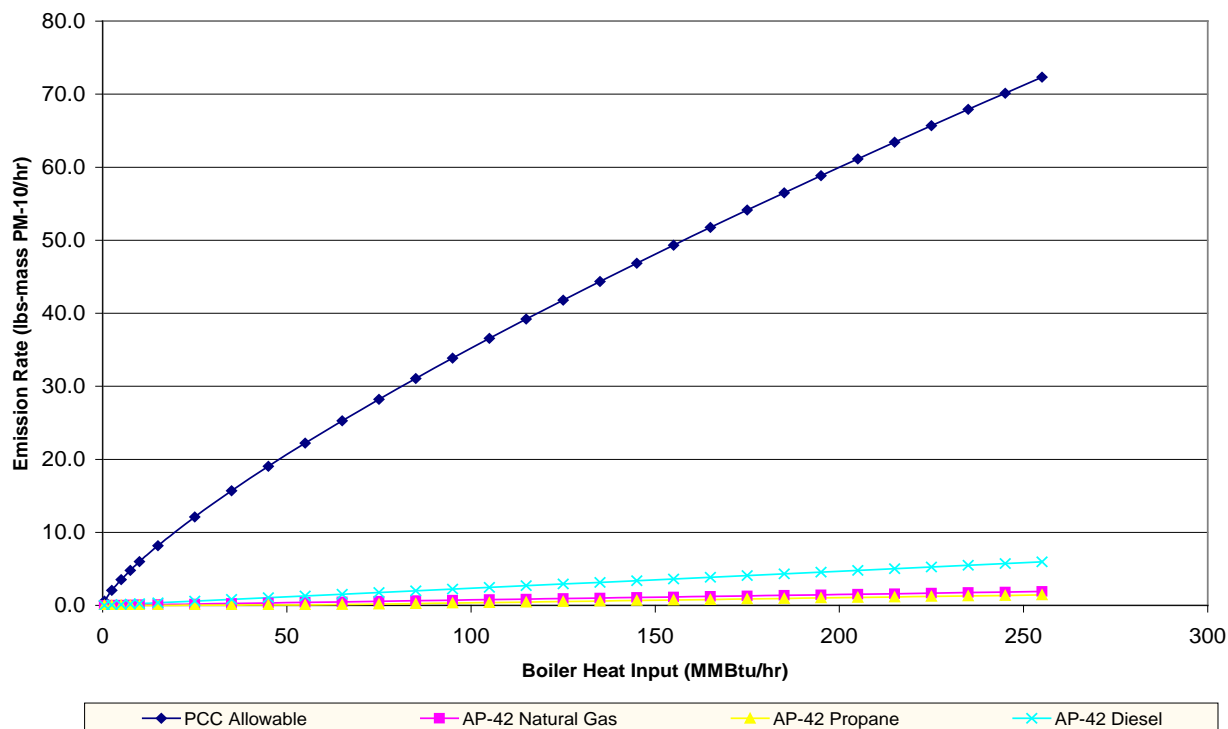
No control technologies needed to be determined; the source is not subject to RACT, BACT or LAER.

## **X. Exclusion of PCC Particulate Matter Discharge Rate Standards**

The applicable PCC rules for the maximum particulate discharge rates are not normally included for Class II area source permits as explained below.

- For particulate matter sources, the calculated maximum particulate matter discharge rate, as provided in Title 17, yields maximum rates that far exceed the emissions expected from most typical area sources. For example a 200 ton/hour process source, which is typical for an average construction aggregate, screening operation, would be limited to a maximum particulate matter discharge rate of 40.4 lb/hour or 177 tons/year. This limit far exceeds estimated emissions from typical sources using EPA AP-42 emission factors and the source is far more likely to exceed opacity and visibility limiting standards well before reaching this limit.
- With regard to fuel burning equipment, 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 limit is not normally included in permits because allowable emissions are consistently over an entire order of magnitude higher than EPA AP-42 estimated potential emissions. The Chart below illustrates the point.

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



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.

**XI. Exclusion of PCC Sulfur Dioxide Emission Standards**

Compliance with the fuel sulfur limitation requirements in the permit shall ensure compliance with the Sulfur Dioxide Standards of PCC 17.16.165.E and 17.16.340.F; which limit the emission of SO<sub>2</sub> to 1.0 pound per million BTU of 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. “High Sulfur Fuel” is defined as fuel oil containing 0.9% wt. or more Sulfur. In accordance with EPA AP-42 Appendix A, page A-5, the heating value of diesel fuel is estimated at 137,000 BTU per gallon. Thus, 1 million BTU of heat input is equivalent to 7.3 gallons of diesel. At 7.05 lb per gallon, 51.47 lb of diesel will produce 1 million BTU. At 0.9% 51.47 lb. of diesel contains 0.46 lb. 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. Thus, low sulfur fuel oil will produce 0.92 lb. 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 limit.

An excess emissions report is required to be submitted to the control officer should the fuel oils fired in fuel burning equipment, to include non NSPS / non NESHAP rotating machinery, contain 0.9% wt. Sulfur or greater since the permit explicitly prohibits the use of high sulfur oil by the Permittee.

Jet fuel, natural gas, gasoline, and No. 1 and 2 distillate fuel oils and diesel delivered to Pima County consistently show sulfur levels below this limit as shown in fuel supplier certifications which verify the sulfur content of the fuel fired. The equipment specific sulfur content limitations in the permit and the prohibition to use high sulfur oil allow for the omission of PCC 17.16.165.E and PCC 17.16.340.F These rules are incorporated by reference in Attachment 1 of the permit.