

UNIVERSITY OF ARIZONA

AIR QUALITY PERMIT #2371

TECHNICAL SUPPORT DOCUMENT (TSD)

1. GENERAL COMMENTS:

A. Company Information

Business Name: University of Arizona

Mailing Address University of Arizona
Risk Management Services
P.O. Box 210300
Tucson, Arizona 85721-0300

Facility Address: University of Arizona
Tucson, Arizona 85721

B. Background

The University of Arizona (hereafter, U of A, and facility) was first permitted in November of 1991 for the operation of a pathological waste incinerator. The initial permit (containing a one year permit term) was renewed annually until the facility received their first 5-year permit effective November 13, 2001.

The November 2001 permit detailed regulations and conditions applicable to the waste incinerator and various fuel fired equipment. A list of the emission sources at the facility is presented in section 2.A of this TSD.

Inspections have been conducted at every two years and past enforcement actions include: The issuance of a Compliance Status Letter for the failure to store VOC containing materials without taking necessary and feasible measures to control evaporation, and issuance of Notice of Violations (NOV) for a failure to comply with several permit conditions included within the monitoring, recordkeeping and reporting requirements of the permit. The last NOV was issued in June 2008 and has subsequently been resolved.

No other violations of air quality standards or permit conditions have been noted. The facility is currently in compliance with permit conditions.

The Table below summarizes the permit actions taken since the last permit renewal:

Summary of Permit Actions Within the Current Permit Term

Date Received/ Approved	Permit Action
2371-0107P	Facility Change – Decommissioning of Natural Gas powered 10kw generator ID 34101 and commissioning of diesel powered emergency generator 340102 at BLDG 34

C. Attainment Classification

The facility is located in a portion of Pima County that is currently classified as attainment for all criteria pollutants.

2. SOURCE DESCRIPTION

The U of A is a non-profit, public education institution whose primary role is to provide student education and maintain research facilities for advanced degree programs. The facility operates under Standard Industry Classification (SIC) Code 8221 and North America Industry Classification System (NAICS) Code 611310.

A. Process Description

The facility is subject to air permitting due to emissions of regulated pollutants generated primarily by fuel-fired equipment. The emission sources at the facility include:

- natural gas-fired boilers;
- diesel-fired emergency generators;
- natural gas-fired emergency generators;
- diesel-fired non-emergency generators;
- natural gas-fired turbines;
- a single pathological waste incinerator;
- A single confined paint spray booth, and,

The facility has federally imposed operating limitations for NSPS subject **emergency** compression ignition and spark ignition internal combustion engines. These limitations are summarized in Table 1.

Table 1
Federally Enforceable Operating Hour Limits for NSPS Subject
Emergency Compression Ignition Internal Combustion Engines

Equipment ID	Voluntary Operating Hour Limits (hrs/yr)
All Emergency Compression Ignition and Spark Ignition Internal Combustion Engines (Subject to NSPS)	100

The facility has proposed voluntary operating limitations for compression ignition internal combustion engines (not subject to NSPS) and spark ignition combustion internal combustion engines. These limitations are summarized in Table 3 and Table 4 respectively.

Table 3
Voluntary Operating Hour Limits for
Compression Ignition Internal Combustion Engines (not subject to NSPS)

Equipment ID	Voluntary Operating Hour Limits (hrs/yr)
1740101	1500
All other Compression Ignition Internal Combustion Engines	100

Table 4
Voluntary Operating Hour Limits for
Spark Ignition Internal Combustion Engines (not subject to NSPS)

Equipment ID	Voluntary Operating Hour Limits (hrs/yr)
Spark Ignition Internal Combustion Engines (Not Subject to NSPS)	100

B. Air Pollution Control Equipment

The following emission source groups include air pollution control equipment:

- Paint spray booth;
- Boilers with Lo-NO_x burners incorporating flue gas recirculation (intrinsic to the boilers); and
- A pathological waste incinerator with a secondary combustion chamber (intrinsic to the incinerator).

3. REGULATORY HISTORY

A. Testing & Inspections

Regular inspections have been conducted by Pima County Department of Environmental Quality (PDEQ) since the initial permit was issued. The following past enforcement actions were a result of those inspections:

- Following the August 16, & 17th, 2016, August 7, 2018, and July 7, 2020 full compliance evaluations, the University of Arizona was found to be in substantial compliance with regulatory compliance.
- PDEQ issued an opportunity to correct, OC 2371-0002R following an incident resulting in one of the emergency generators exceeding its operational limit of 100 hours. The University of Arizona responded to the OC and took measures to prevent recurrence and was issued a letter of compliance on September 23, 2016.

B. Excess Emissions

In addition to the OC referenced above, On July 26, 2019, a permit deviation was voluntarily submitted regarding a spare emergency generator which had exceeded its voluntary limit of 100 hours due to unexpected usage for special events. The University of Arizona has taken steps to prevent recurrence and is currently in substantial compliance with regulatory requirements.

4. EMISSIONS ESTIMATES

A summary of the facility’s annual potential to emit (PTE) of regulated pollutants is presented in Table 5.

The following emission estimates were based upon information contained in the U of A permit renewal application (July 10, 2020). PTE estimates DO NOT INCLUDE INSIGNIFICANT EMISSIONS.

Detailed calculations of these emissions have been provided by the Permittee and have been reviewed and approved by PDEQ. Based on these emission estimates, the facility is a Class I, major source for NO_x, and a true minor for all other pollutants.

Table 5
Annual Potential to Emit

Emission Source	Regulated Pollutant							
	PM	PM ₁₀	PM _{2.5}	NO _x	SO ₂	CO	VOC	HAPs (Total)
Facility Wide Actual Emissions	18.02	18.02	18.02	110.67	5.78	67.84	12.16	4.03

¹ Particulate matter emissions are assumed to be predominately of PM_{2.5} size fraction.

Insignificant and trivial activities are identified in section 5.1.1 and 5.1.2 of the permit application pursuant to the definition in PCC 17.04.340. Among the insignificant and trivial activities are a number of activities that have been determined by the Control Officer to be insignificant in accordance with PCC 17.04.340.114.j.

5. APPLICABLE REQUIREMENTS

New Source Performance Standards (NSPS)

The following NSPS rules are applicable to the source:

- 40 CFR Part 60 Subpart A - General Provisions - applicable to equipment subject to 40 CFR Part 60, Subparts Dc and GG as described below.
- 40 CFR Part 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units - applicable to the six boilers rated between 10 MMBtu/hr and 100 MMBtu/hr, and installed after June 9, 1989.
- 40 CFR Part 60 Subpart GG - Standards of Performance for Stationary Gas Turbines - applicable to the two natural gas turbines with heat input at peak load greater than 10 MMBtu/hr, and installed after October 3, 1977.
- 40 CFR Part 60 Subpart IIII - New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines – applicable to three stationary compression ignition internal combustion engines (CI ICE) that are not certified National Fire Protection Association (NFPA) fire pump engines and are model year 2007 or later.
- 40 CFR Part 60 Subpart JJJJ - New Source Performance for Stationary Spark Ignition Internal Combustion Engines – applicable to one engine that commenced construction after June 12, 2006, where the stationary SI ICE was manufactured on or after January 1, 2009, for emergency engine with a maximum engine power greater than 19KW (25 HP).
- 40 CFR Part 60 Subpart KKKK: New Source Performance Standards for Combustion Turbines – applicable to the modified T60 NSPS Stationary Gas Turbine (Equipment Identification 2050301) identified in Table 8, Attachment 2 of this permit

40 CFR 60.4305(b), 61.4315, 60.4320(a), 60.4330(a)(1), 60.4330(a)(2), 60.4333(a), 60.4333(b), 60.4340(a), 60.4365, 60.4365(a), 60.4365(b), Section 2.3.1.4 or 2.3.2.4 of Appendix D to part 75, 60.4375(b), 60.4400(a), 60.4400(a)(1), 60.4400(a)(1)(i), 60.4400(a)(1)(Eq. 5), 60.4400(a)(1)(ii), 60.4400(a)(2), 60.4400(a)(3), 60.4400(a)(3)(ii), 60.4400(a)(3)(ii)(B), 60.4400(a)(3)(ii)(C), 60.4400(b), 60.4400(b)(1), 60.4400(b)(2), 60.4400(b)(3), 60.4400(b)(4), 60.4400(b)(5), 60.4400(b)(6).

The following NSPS rules could, but do not apply for the following reason(s):

- 40 CFR Part 60, Subpart Ce – Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators – if the incinerator combusts pathological waste, low level radioactive waste, or chemotherapeutic waste, as defined in 40 CFR 60.51, and notifies the PDEQ of this exemption and maintains quarterly combustion records for the incinerator, then the incinerator is not subject to this subpart. The University Animal Care (UAC) incinerator (Building #104) only combusts pathological waste (carcass) and all required records are maintained; therefore, it is not subject to this subpart.
- 40 CFR Part 60 Subpart D - Standards of Performance for Fossil Fuel Fired Steam Generators for Which Construction is Commenced After August 17, 1971 - does not apply because the affected facilities (boilers) at the facility do not have a capacity greater than 73 megawatts (250 MMBTU).
- 40 CFR Part 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units - does not apply because the affected facilities (boilers) at the facility do not have a heat input capacity greater than 29 MW (100 million Btu/hour).
- 40 CFR Part 60, Subpart E – Standards of Performance for Incinerators – this subpart is applicable to incinerators with a charging rate of 45 metric tons per day or more. The UAC incinerator has a maximum charging rate of 1.47 metric tons per day; therefore, it is not subject to this subpart. A typical charge is less than 300 pounds and is operated less than 10 days in a 6-month period.
- 40 CFR Part 60, Subpart Ec – Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators – this subpart is applicable to incinerators that were constructed after June 10, 1996 or modified after March 16, 1998. The UAC incinerator was constructed in 1989; therefore, it is not subject to this subpart.
- 40 CFR Part 60, Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Incineration Units – this subpart is applicable to incinerators that were constructed after June 4, 2010 or modified after August 7, 2013. The UAC incinerator was constructed in 1989; therefore, it is not subject to this subpart.
- 40 CFR Part 60 Subpart EEEE - Standards of Performance for Other Solid Waste Incineration Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006. – does not apply provided that the Permittee burns in the incinerator 90 percent or more by weight (on a calendar quarter basis and excluding the weight of auxiliary fuel and combustion air) of pathological waste, low-level radioactive waste, and/or chemotherapeutic waste as defined in §60.2977 and you notify the Administrator that the unit meets these criteria. (See 40 CFR 60.2877(l) for the definition of pathological waste).
- 40 CFR Part 60, Subpart FFFF – Emission Guidelines and Compliance Times for Other Solid Waste Incineration Units That Commenced Construction On or Before December 9, 2004 – this subpart is not directly applicable to owners or operators of incineration units. However, owners and operators must comply with the State plan that is developed to implement emission guidelines contained within this subpart. Institutional waste incineration units are excluded from this subpart if they burn 90 percent or more by weight of pathological waste, low-level radioactive waste, or chemotherapeutic waste the pathological incinerator meets this exclusion.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

The following NESHAP rules are applicable to the source:

40 CFR Part 63, Subpart A: General Provisions. This subpart contains national emissions standards for HAPs that regulate specific categories of sources that emit one or more HAP regulated pollutants under the CAA. The general provisions under subpart A apply to sources that are subject to the specific Subparts of Part 63

40 CFR Part 63, Subpart ZZZZ: National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. - This rule establishes national emission limitations and operating limitations for HAPs emitted from stationary reciprocating internal combustion engines (RICE). The rule applies to owners or operators of new and reconstructed stationary RICE of any horsepower rating which are located at a major **or area source** of HAP. While all stationary RICE located at major **or area sources** are subject to the final rule (promulgated January 18, 2008, amending the final rule promulgated June 15, 2004), there are distinct requirements for regulated stationary RICE depending on their design, use, horsepower rating, fuel, and major or area HAP emission status.

The following NESHAP rules could, but do not apply for the following reason(s):

- 40 CFR Part 63 Subpart Q - National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers (Section 63.400 - 63.406 & Table) - does not apply because the facility does not use chromium based chemicals in the cooling towers and is not a major source for HAPs. The application includes a certified declaration of that no chromium based water treatment chemicals are being used.

State Implementation Plan (SIP)

The following SIP rules apply to the facility:

- Authority SIP Rule 103
- General Applicability..... SIP Rule 111
- Posting of Permit SIP Rule 222
- Permit Fee Schedule/Non-Fee Requirements..... SIP Reg 24
SIP Reg 25
- Fugitive Dust Producing Activities..... SIP Rule 224
- Planning, Construction, or Operating Without a Permit..... SIP Rule 301
- Incinerators..... SIP Rule 313
- Petroleum Liquids..... SIP Rule 314
- Particulates Material. (Subsections A, C, and D)..... SIP Rule 316
- Emissions Discharge Opacity Limiting Standards,
Standards and Applicability (Includes NESHAP)..... SIP Rule 321
- Compilation of Mass Rates and Concentrations. (NESHAPS)..... SIP Rule 332
- Visibility Limiting Standard..... SIP Rule 343
- Odor Limiting Standards SIP Rule 344
- Periodic Testing..... SIP Reg 50
- Reporting for Compliance Evaluations..... SIP Rule 621
- Reporting for Emission Inventories..... SIP Rule 623

Pima County Code (PCC)

The following PCC rules apply to the facility:

Chapter 17.11 – General Provisions for Permits

- Material Permit Condition.....PCC 17.11.120
- Test Methods and Procedures.....PCC 17.11.160
- Permits Containing Voluntarily Accepted Emission Limits and Standards, the facility has self-imposed limits on all gasoline engines and emergency generators as summarized in Tables 2A through 2C of the May 2006 permit application.....PCC 17.11.190
- Performance Tests.....PCC 17.11.210

Chapter 17.12 – Individual Permits and Permit Revisions for Class I Permits

- Permit Application Processing.....PCC 17.11.010
- Permit Contents.....PCC 17.12.040
- Compliance Plan – Certification.....PCC 17.12.080
- Facility Changes Allowed Without Permit Revisions.....PCC 17.12.090
- Compliance Plan – Certification.....PCC 17.12.080
- Administrative Permit Amendment.....PCC 17.12.100
- Minor Permit Revision.....PCC 17.12.110
- Significant Permit Revisions.....PCC 17.12.120
- Reopening, Revocation, Reissuance, or Termination.....PCC 17.12.130
- Permit Renewal and Expiration.....PCC 17.12.140
- Annual Emission Inventory Questionnaire.....PCC 17.12.160
- Excess Emissions Reporting Requirements.....PCC 17.12.170
- Affirmative Defenses for Excess Emissions due to Malfunctions, Startup, and Shutdown.....PCC 17.12.180
- Fees.....PCC 17.12.220

Chapter 17.14 – Activity Permits

- Asbestos NESHAP Activity Permits.....PCC 17.14.060
- Open Burning Permits.....PCC 17.14.080

Chapter 17.16 – Emission Limiting Standards

- Local rules and Standards.....PCC 17.16.010
- Noncompliance with Applicable Standards.....PCC 17.16.020
- Odor Limiting Standards.....PCC 17.16.030
- Visible Emissions Standards - Standards and applicability (Includes NESHAP).....PCC 17.16.040
- Visibility limiting standard.....PCC 17.16.050
- Applicability.....PCC 17.16.130
- Standards of performance for fossil-fuel fired steam generators and general fuel burning equipment.....PCC 17.16.160
- Standards of performance for fossil-fuel fired industrial and commercial equipment (particulate matter limitation).....PCC 17.16.165.C
- Standards of performance for fossil-fuel fired industrial and commercial equipment (sulfur dioxide limitation).....PCC 17.16.165.E
- Incinerators.....PCC 17.16.170

- Standards of performance for storage vessels for petroleum liquids.....PCC 17.16.230
- Standards of performance for stationary rotating machinery.....PCC 17.16.340
- Organic solvents and other organic materials (sections A and C).....PCC 17.16.400
- Standards of Performance for Unclassified Sources (sections D and F).....PCC 17.16.430
- Standards of performance for New Stationary Sources (NSPS) - Subparts Dc, GG, IIII, JJJJ, KKKK.....PCC 17.16.490
- Standards of performance for Incinerators.....PCC 17.16.510
- National Emission Standards for Hazardous Air Pollutants (NESHAP) - Part 61, Subpart M – Asbestos; Part 63, Subpart ZZZZ – Stationary RICE.....PCC 17.16.530
- Sale and use of Refrigerant Substitutes.....PCC 17.16.710

Chapter 17.20 – Emission Source Testing and Monitoring

- Source Sampling, Monitoring, and Testing.....PCC 17.20.010

Chapter 17.24 – Emission Source Recordkeeping and Reporting

- Recordkeeping for compliance determination.....PCC 17.24.020
- Recordkeeping for emission inventories.....PCC 17.24.030
- Reporting for compliance evaluations.....PCC 17.24.040
- Reporting as a permit requirement.....PCC 17.24.050
- Reporting for emission inventories.....PCC 17.24.060
- Article IV – Penalty for noncompliance (inclusive)

Chapter 17.28 – Violations and Conditional Orders

- Article I – Violations (inclusive)
- Article II – Conditional Orders (inclusive)
- Article III – Circumvention (inclusive)

6. PERMIT CONTENTS

§4 - Category A:

NSPS for Small Industrial-Commercial-Institutional Steam Generating Units (Boilers rated between 10 MMBtu/hr and 100 MMBtu/hr, and installed after June 9, 1989)(40CFR Part 60, Subpart Dc)

Emission Limitations/ Standards:PCC 17.12.040.A.2

The facility is not subject to any emission limit under 40 CFR 60 Subpart Dc. The source is however subject to monitoring and recordkeeping requirements.

- 40. Opacity StandardSIP Rule 321& PCC 17.16.040.A
- 41. Fuel Limitation.....PCC 17.12.190.B

Monitoring & Recordkeeping Requirements:.....PCC 17.12.180.A.3 & 4

- 42. Opacity monitoring.....PCC 17.12.040.A.3
- 43. Fuel limitation requirement.....PCC 17.12.040.A.3
- 44. Retention of fuel combustion records.....40 CFR 60.48c(i) &
- 45. Daily amounts of fuel combusted.....40 CFR 60.48c(g)(2) & (3)

Federal New Source Performance Standards require the Permittee to record and maintain records of the amount of fuel combusted during each day. [Pursuant to 40 CFR 60.48c(g)]

Various Environment Protection Agency (EPA) 'Applicability Determination Index' documents are available detailing the EPA's position to allow changes to the daily fuel usage recordkeeping and reporting frequency under Subpart Dc for boilers fired with only natural gas. EPA's reasoning has been that it is unnecessary to keep daily fuel usage records since none of the emission standards in Subpart Dc apply to units fired with natural gas. As such, the facility shall be exempt from monitoring the daily fuel use in the NSPS applicable boiler set. The facility is however required to keep separate records of the amount of natural gas burned in each NSPS applicable boiler set. [Reference: EPA Applicability Determination Index, Determination Detail Control, Number 0300118] also [030018 0300114, 0300113, 0400002, 0300108, 0300103, 0300107, 0300102, 0200005, 0100050 and 0400020].

40 CFR 60.48c(g)(3) allows the Permittee to record the total amount of natural gas delivered to each affected boiler set, during each calendar month.

45. Determination of total monthly amount of fuel combusted.....PCC 17.12.190.B & EPA Determination Detail Control Number 0300118

Reporting Requirements:

46. Excess emissions reporting.....PCC 17.12.040.A.5 & PCC 17.12.170

Testing Requirements:

No applicable NSPS performance test requirements on associated effected facilities (boilers) because the facility is not subject to the compliance and performance test methods and procedures for sulfur dioxide, 60.44c(a) through (j).

48. The facility is however subject to the locally enforceable performance test requirements identified below:

Opacity.....PCC 17.12.040.B & PCC 17.20.010
Fuel Limitation.....PCC 17.12.040.A.3 & PCC 17.20.010
Alternative Test Method.....PCC 17.12.045.D

Miscellaneous Comments:

- NSPS SO₂ standard not applicable as the facility boilers combust only natural gas. [40 CFR 60.42c(j)];
- No performance tests required, as the boiler is not subject to (a) through (j) of 40 CFR 60.44c;
- Pursuant to 40 CFR 60.48c(g), the source is required to maintain records of the amounts of fuel combusted during each day, however see exclusion to this rule detailed in Section 6, Permit Contents, Category A.II of this TSD.
- The facility has demonstrated compliance with the notification of the date of construction or reconstruction, anticipated startup and actual startup pursuant to 40 CFR 60.7 and thus the specific conditions 40 CFR 60.48c(a), 40 CFR 60.48c(a)(1), and 40 CFR 60.48c(3) are not included in the reporting requirements of the permit.

§5 - Category B

New Source Performance Standards (NSPS) for Stationary Gas Turbines (40 CFR Part 60, Subpart GG):

Emission Limitations/ Standards:.....PCC 17.12.040.A.2

- 50. Nitrogen Oxide Limitation.....40 CFR 60.332 (c) & 40 CFR 60.332(a)(2)
- 51. Sulfur Dioxide Fuel Limitation.....40 CFR 60.333(b)
- 52. Fuel Limitation.....PCC 17.12.190.B
- 53. Operational Restrictions.....40 CFR 60.11(d), PCC 17.16.020, 40 CFR 60.12 & PCC 17.20.040

Monitoring & Recordkeeping Requirements:.....PCC 17.12.180.A.3 & 4

- 54. Nitrogen Oxide, Sulfur Dioxide, and Fuel Limitation.....40 CFR 60.334(h)(3) & PCC 17.12.180.A.2

Recordkeeping Requirements:.....PCC 17.12.180.A.4

- 55. Operational Records.....40 CFR 60.7(b)
- 56. Retention of Monitoring Records.....40 CFR 60.7(f) & PCC 17.12.180.A.4.b

Reporting Requirements:.....PCC 17.12.180.A.5

- 57. Compliance certifications.....40 CFR 60.11(g)

Testing Requirements:.....PCC 17.12.010

No applicable NSPS performance test requirements on associated effected facilities (gas turbine). The facility is however subject to the locally enforceable performance test requirements identified below:

- 58. Periodic Performance Testing for NO_x.....PCC 17.12.010.B

Miscellaneous Comments:

- The facility is not subject the monitoring requirement under 60.334(a) or (b) as the facility does not use water or steam injection to control NO_x emissions.

Calculated allowable NO_x emission concentration (STD) for the **Solar Taurus 70** Gas Turbine:

Y = 10180 kJ/kW-hr = 10.18 kJ/W-hr
 F = 0 (zero) [compliance emission test report dated 12/05-06/02 & 12/09/02]

STD = 0.0150 x (14.4/10.18) = 0.0212 ppm

- Compliance with the NO_x, SO_x and Fuel Limitation requirements can be demonstrated by certifying that the fuel used in the process was "natural gas." The federal criteria for natural gas from [40 CFR 60.322(u)] is as follows:

Natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g. , methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet. Equivalents of this in other units are as follows: 0.068 weight percent total sulfur, 680 parts per million by weight (ppmw) total sulfur, and 338 parts per million by volume (ppmv) at 20 degrees Celsius total sulfur. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 British thermal units (Btu) per standard cubic foot.

Natural gas does not include the following gaseous fuels: landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value.

- The Permittee may demonstrate compliance with the PM₁₀ standard by also certifying that the fuel used in the process was "natural gas".

Calculated Particulate Emission Limitation (E) for the Solar Taurus 60 Gas Turbine:

$$\text{Heat Input (Q)} = 7965 \text{ Btu/hp-hr} = 7.965\text{E-}3 \text{ MMBtu/hp-hr}$$

$$E = 1.02 \times 7.965\text{E-}3 \times 0.769 = \underline{0.0248 \text{ lb/hr}}$$

Calculated Particulate Emission Limitation (E) for the Solar Taurus 70 Gas Turbine:

$$\text{Heat Input} = 7310 \text{ Btu/hp-hr} = 7.310\text{E-}3 \text{ MMBtu/hp-hr}$$

$$E = 1.02 \times 7.310\text{E-}3 \times 0.769 = \underline{0.0232 \text{ lb/hr}}$$

- The Permittee shall demonstrate compliance with the sulfur dioxide standard of 40 CFR 60.333 (applicable to the gas turbines) by ensuring the sulfur content of fuel fired does not exceed 0.8% by weight. This fuel sulfur content limitation approach to demonstrate compliance with the sulfur dioxide standard has been chosen by PDEQ. The alternative demonstration as presented in 40 CFR 60.333(a) has not been chosen as it would require the source to perform a source emissions test. Compliance with the fuel content approach can be readily demonstrated by making available to the Control Officer for his inspection, documentation, such as invoices or statements from the fuel supplier, showing that only commercial natural gas was purchased for use in the equipment.
- The two gas turbines are not subject to Acid Rain provisions. Utility units are exempt from the Acid Rain provisions if the total name-plate capacity is equal to or less than 25 MWe, do not burn coal or coal-derived gaseous fuel with a sulfur content greater than natural gas, and burn gaseous fuel with an annual average sulfur content of 0.05% or less by weight (40 CFR, 72.7(a)).
- CAM provisions do not apply to the two gas turbines nor the six NSPS boilers. 40 CFR Part 64.2(a) defines the applicability of CAM to emissions units. For CAM to apply, the unit must be subject to an emission limit or standard for the applicable regulated pollutant, the unit must use a control device to achieve compliance with that limitation or standard, and the unit must have a pre-control emission potential that would classify it as a major source. The gas turbines have an emission standard for NO_x in 40 CFR Part 60, Subpart GG, the larger turbine will be using a CO catalyst add-on control device, but both unit's potential-to-emit is less than major source levels. The six NSPS boilers have no add-on control devices as defined in 40 CFR 64.1 and, additionally, each unit's potential-to-emit is less than major source levels.

§6 - Category C

RESERVED

New and Existing Stationary Source Performance Standards for Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart III) (Non Emergency CI ICE)

§7 - Category D

New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (CI ICE) (40 CFR Part 60, Subpart III) Emergency (non fire-pump) (CI ICE)

Applicability:

70. 40 CFR Subpart III.....40 CFR 60.4218 & 40 CFR 60.4214(b)
40 CFR 60.4200

Emission Limits and Standards:.....PCC 17.12.040.A.2

71. Operational Limitations.....PCC 17.12.185.A.2, 40 CFR 60.4201(a)

a-e. Emission Limits.....40 CFR 60.4201, 40 CFR 60.4203 & , 40 CFR 60.4204,
40 CFR 60.4206 & 40 CFR 60.4211(a)

72. Fuel Requirements.....40 CFR 60.4207(a) & 40 CFR 80.510(a) &(b)
40 CFR 60.4207(b), 40 CFR 80.510(b)
& 40 CFR 60.4207(c)

73. Installation Restrictions.....40 CFR 60.4208(a), 40 CFR60.4208(b)
& 40 CFR 4208(g) & (h)

74. Operational Hours (Emergency Designation).....40 CFR 60.4211(e)

75. Compliance.....40 CFR 60.4211, 40 CFR 40211(a)
& 40 CFR 4209(a)

Monitoring & Recordkeeping Requirements:.....PCC 17.12.040.A.3 & 4

76. Monitoring Requirements.....PCC 17.12.180.A.3, 40 CFR 89.1113(b)

- a. Hourly Operational Records.....PCC 17.12.180.A.4
- b. Manufacturer Certifications.....PCC 17.12.180.A.4
- c. Diesel Fuel Recordkeeping.....PCC 17.12.180.A.4
- d. Opacity.....40 CFR 89.113(b) & PCC 17.12.180.A.3&4

Reporting Requirements:

77.....40 CFR 60.4214 (a)(1) & PCC 17.12.180.A.5

Testing Requirements:

78.....40 CFR 60.4212 & PCC 17.12.180.A.3.a

§8 - Category E

New Source Performance Standards (NSPS) for Stationary Spark Ignition Internal Combustion Engines (SI ICE) (40 CFR Part 60, Subpart JJJJ): (Emergency SI ICE > 25 HP, manufactured after January 1, 2009)

Applicability:

- 80. 40 CFR, NSPS Subpart JJJJ..... 40 CFR 4230(a)
40 CFR 60.4216

Emission Limits and Standards:..... PCC 17.12.040.A.2

- 81. Emission Limits..... 40 CFR 60.4233(e)
- 82. Installation Restrictions..... 40 CFR 60.4236(c),
40 CFR 60.4236(e),
- 83. Compliance..... 40 CFR 60.4243(a)
60.4243(d), 60.4243(e)

Monitoring & Recordkeeping Requirements

- 84. Monitor & Maintain Records..... PCC 17.12.180.A.3 & 4
 - a. Operational Hour Records..... PCC 17.12.180.A.4
 - b. Maintenance..... 40 CFR 60.4245(a)(2)
 - c. Certifications..... 40 CFR 60.4245(a)(3)

Reporting Requirements:

- 85. Excess Emissions..... PCC 17.12.040.A.5

Testing Requirements:

- 86..... PCC 17.20.010
& 40 CFR 60 .4244

Miscellaneous Comments:

- On August 2, 2010, PDEQ received a permit revision application from the Permittee to install three emergency generators throughout the facility to replace existing units. This revision triggered new applicable requirements, 40 CFR Part 60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines that were not in the Permit. PDEQ instructed the Permittee to submit the application as a minor revision as there were no changes to or the establishing of a synthetic emission limitation and all the provisions of PCC 17.12.255 (minor permit revision) was satisfied.

§9 - Category F

National Emission Standards for Hazardous Air pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) For Non-Emergency CI ≤ 300 HP

Applicability:

- 90. 40 CFR, NSPS Subpart JJJJ.....40 CFR 63.6585
40 CFR 63.6585, 63.6590 (a)(iii), 63.6595, 63.6670(a),
General Provisions (40 CFR Part 63) – See Table 8: Yes, except 63.6645(a)(5), the following do not
apply: 63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), and 63.9(b)-(e), (g) and (h)

Emission Limits and Standards:.....PCC 17.12.040.A.2

- 91. Hour LimitationPCC 17.12.120A.3.c
PCC 17.11.190.
- 92. Management Practices.....63.6603(a), 63.6605(a)
63.6625(h)
- 93. Opacity and Fuel Requirements.....SIP Rule 321 & PCC 17.16.040 & 17.16.340

Monitoring & Recordkeeping Requirements:.....PCC 17.12.040.A.3 & 4

- 94. O & M requirements.....63.6605(b)
- 95. Monitor and Keep Records
 - a. Hour limitation.....PCC 17.12.040.A.3
 - b. Management Practices and Maintenance.....63.6625(i),63.6625(e)(4),
63.6640(a), 66.6645(a)(5), 63.6655(a)(1, 2, 4 & 5),
Table 2d, (Row 1) & foot-note 1,
Table 6 (Row 9)
 - c. Fuel Limitation.....PCC 17.12.040.A.3.c
 - d. Opacity.....PCC 17.12.040.A.3.c & 4
 - e. Record Retention.....63.6660

Reporting Requirements:

- 96. Excess Emissions.....PCC 17.12.040.A.5

Testing Requirements:

- 97.....PCC 17.20.010
PCC 17.12.045

§10 - Category G

New and Existing Stationary Source Performance Standards for Internal Combustion Engines, Compression and Spark Ignition. (Locally Enforceable Conditions, unless otherwise stated):

Emission Limitations/ Standards:.....PCC 17.12.040.A.2

100. Particulate Matter Limitation.....PCC 17.16.340.C

101. Opacity limitations.....SIP Rule 321, PCC 17.16.340.E & PCC 17.16.040

102. Sulfur Dioxide Limitation.....PCC 17.16.340.F

103. Operational limitation.....PCC 17.12.190.B

104. Fuel limitation.....PCC 17.12.190.B

Monitoring & Recordkeeping Requirements:.....PCC 17.12.040.A.3 & 4

105. Monitor & maintain records
- a. Compliance with the Particulate matter limitation when required by the Control Officer.....PCC 17.12.180.A.3
 - b. Opacity.....PCC 17.12.180.A.3
 - c. Sulfur Dioxide – compliance with fuel limitation
 - d. Operational Hours.....PCC 17.12.180.A.3
 - e. Fuel use verification.....PCC 17.12.180.A.3

Reporting Requirements:

106. Excess Emissions.....PCC 17.12.040.A.5
107. Any daily period %S >0.8%.....PCC 17.16.340.J

Testing Requirements:

108. Testing.....PCC 17.12.040.A.3
-PCC 17.12.045
-PCC 17.12.050
- a. Opacity.....PCC17.12.050
 -PCC 17.12.040.B
 -& PCC 17.20.010
 - b. Fuel Sulfur.....PCC 17.20.010
 - c. Alternative Test Method.....PCC 17.12.045.D

§11 – Category H

New and Existing Stationary Source Performance Standards for Fossil-Fuel Fired Industrial and Commercial Equipment (not subject to NSPS) (Locally Enforceable Conditions, unless otherwise stated):

Emission Limitations/ Standards:.....PCC 17.12.040.A.2

110. Particulate Matter.....SIP Rule 332,
PCC 17.16.165.C
& PCC 17.16.165.D

111. Opacity Limitation.....PCC 17.16.040

112. Fuel Limitations.....PCC 17.12.190.B
& PCC 17.16.165.G

Monitoring & Recordkeeping Requirements:.....PCC 17.12.040.A.3 & 4

113. Monitor and Keep Records (retention requirements)

a. Particulate matter.....PCC 17.12.040.A.3

b. Opacity.....PCC 17.12.040.A.3

c. Fuel.....PCC 17.12.040.A.3

Reporting Requirements:.....PCC 17.12.040.A.5

114. Excess emissions.....PCC 17.12.170

Testing Requirements:

115. Testing.....PCC 17.12.040.A.3
PCC 17.12.045
PCC 17.12.050

a. Opacity.....PCC17.12.050
PCC 17.12.040.B
& PCC 17.20.010

b. Fuel Sulfur.....PCC 17.20.010

c. Alternative Test Method.....PCC 17.12.045.D

§12 – Category I

New and Existing Stationary Source Performance Standards for the Pathological Incinerator (Locally Enforceable Conditions, unless otherwise stated):

Emission Limitations/ Standards:.....PCC 17.12.040.A.2

120. Opacity Limitation.....SIP Rule 321.A,
PCC 17.16.170.B
& PCC 17.16.170.E.1

121. Particulate Matter Limitation.....SIP Rule 332.A,
PCC 17.16.170.C.1,
PCC 17.16.170.E.1

123. Visibility Limitation.....PCC 17.16.050.D

124. Operational Limitations

a. Allowable Waste for Incineration.....PCC 17.12.180.B
[Ref: 40 CFR 60.2887(1)]

- b. Hour Limitation..... SIP Rule 313.A
& PCC 17.16.170.A
- c. Fuel Limitation..... PCC 17.12.190.B

Monitoring & Recordkeeping Requirements:..... PCC 17.12.180.A.3

125. Monitor and Keep Records (Record Retention)

- a. Opacity and visible emissions..... PCC 17.12.180.A.3 & 4
- b. Particulate Matter..... PCC 17.12.180.A.3 & 4
- c. Allowable waste..... PCC 17.12.180.A.3
- d. Operating Log Requirements..... PCC 17.16.170.F
PCC 17.16.510
40 CFR 60.53
- e. Fuel Limitations..... PCC 17.12.180.A.3
& PCC 17.12.180.A.4

Reporting Requirements:

- 126. Excess Emissions..... PCC 17.12.040

Testing Requirements:

- 127.
 - a. Opacity..... PCC 17.12.050,
PCC 17.12.040.B
& PCC 17.20.010
 - b. Particulate Matter..... PCC 17.12.180.A.3.a,
PCC 17.16.170.G.1.a
& PCC 17.20.010
 - c. Fuel..... PCC 17.12.180.A.3
& PCC 17.20.010
 - d. Alternative Test Method..... PCC 17.12.045.D

§13 – Category J

New and Existing Stationary Source Performance Standards for the Surface Coating and Solvent Degreasing Activities. (Locally Enforceable Conditions, unless otherwise stated)

Emission Limits/ Standards:..... PCC 17.12.040.A.2

- 130. Surface Coating Overspray Control..... PDEQ Technical Procedure,
TECH-202

- 131. Standard Operating Procedure..... PCC 17.12.180.A.2

132. Solvent Degreasing Gaseous/Odororous Materials

- a. VOC/ODOR Control..... PCC 17.16.430.D,
SIP Rule 344
& PCC 17.16.430.F

Monitoring & Recordkeeping Requirements:..... PCC 17.12.180.A.3 & 4

- a. Conditions for Confined Paint Spray Operations..... PCC 17.12.180.A.3
& PCC 17.12.180.A.4
- b. Conditions for Solvent Degreasing Activities..... PCC 17.12.010
& PCC 17.12.180.A.3

Reporting Requirements:

134. Excess Emissions.....PCC 17.12.040

Testing Requirements:

None specified in Pima County Code.

§14 – Category K

New Source Performance Standards For Combustion Turbines (40 CFR Part 60, Subpart KKKK)

Applicability.....40 CFR 60.4305

140. Regulated Pollutants.....40 CFR 60.4315

Emission Limits/ Standards:.....PCC 17.12.040.A.2

141. Emission Limits

a. Nitrogen Oxide Emission Limits.....40 CFR 60.4320

b. Sulfur Dioxide Emission Limits.....40 CFR 60.4330

142. General Requirements.....40 CFR 60.4333

Monitoring & Recordkeeping Requirements:.....PCC 17.12.180.A.3 & 4

143. Nitrogen Oxides.....40 CFR 60.4340

144. Exemption from Monitoring Total Sulfur Content.....40 CFR 60.4365

Reporting Requirements:

145. Annual Performance Test Reporting Requirement.....40 CFR 60.4375

146. Excess Emissions.....PCC 17.12.040

Testing Requirements:

147. Performance Test Methodology.....40 CFR 60.4400(a)

148. Load Conditions and Testing Requirements.....40 CFR 60.4400(b)

§15 – Category L

General Facility-Wide Standards

Emission Limits/ Standards & Monitoring:.....PCC 17.12.040.A.2 & 3

150. General Facility Wide Requirements

a. Facility Changes.....PCC 17.12.180.A.2

b. Air Pollution Control Equipment.....PCC 17.16.020.B

c. Odor Limiting Standard.....PCC 17.12.030
& PCC 17.12.010

Recordkeeping Requirements:.....PCC 17.12.180.A.4.b

151. Record Retention & Posting Requirements.....PCC 17.11.060
& PCC 17.12.040.A.4

152. Facility Wide Reporting Requirements

- a. Excess Emissions.....PCC 17.12.070
- b. Semiannual Reports of Required Monitoring.....PCC 17.12.040.A.5.a
- c. Compliance Certifications.....PCC 17.12.080.A.2
- d. Emissions Inventory Reporting.....PCC 17.12.160

Testing Requirements

153. There are no facility-wide testing requirements. Specific testing requirements are addressed in each individual category.....PCC 17.11.210, SIP Reg 50, SIP Rule 212

7. ALTERNATE OPERATING SCENARIOS:

The applicant has not requested any alternate operating scenarios.

8. IMPACTS TO AMBIENT AIR QUALITY

The facility is currently not subject to PSD or NSR review.

9. CONTROL TECHNOLOGY DETERMINATION

No control technologies needed to be determined. This facility is in an area of attainment and is not a new source.

10. PREVIOUS PERMIT CONDITIONS

None omitted.