

TECHNICAL SUPPORT DOCUMENT (TSD)
(For Air Quality Operating Permit #1906 - Revised June, 2014)

I. GENERAL COMMENTS:

This source is a federal hospital for the U.S. Department of Veterans Affairs located in South Tucson, Arizona.

A. Company Information

1. Southern Arizona VA Health Care System
2. 3601 S. Sixth Avenue, Tucson, AZ 85723

B. Background

This source is currently under a five year operating permit that was issued on April 9, 2004. This TSD addresses the permit renewal application received on March 17, 2009, the significant permit revision received on September 1, 2009, the minor permit revision received on December 30, 2013 and the significant revision received on March 10, 2014. The initial significant revision accommodated the replacement of three dual fired boilers and the minor permit revision detailed the installation of an additional emergency generator. The March 2014 significant revision incorporated a synthetic minor revision to limit the dual fired boilers potential SO_x emissions to 90 tons/year. The hospital has been in operation since 1928.

C. Attainment Classification

The hospital is located in an area that is in attainment for all pollutants.

II. SOURCE DESCRIPTION

A. Process Description

The main permitted air pollution equipment at the source is the boilers and generators that serve as support facilities. The generators are used for backup electrical power in the case of an emergency or power outage. The boilers are used for steam production and heating hot water.

Three boilers are used as steam production and the remaining two (housed in Building 80) are used for water heating. The steam production boilers are used in rotation depending on the requirements of the day and the main air pollutants emitted from all boilers are NO_x, SO_x and CO.

The dual-fired boilers are limited to consuming no more than one million (1,000,000) gallons of diesel fuel (total) during any twelve (12)-consecutive month period.

The generators have been classified into three groups:

1. generators subject to Pima County Code
2. generators subject to New Source Performance Standards (NSPS),
3. generator classified as non-road engines

The non NSPS back-up (emergency) power generators are limited to a total of five hundred (500) operating hours each during any 12-consecutive month period. This limitation on hours is only on maintenance and testing of the generators to ensure that they are operating as required. There is no limit during emergencies or power outages.

The NSPS generators are identified in Attachment 4 and they are limited to a total of one hundred (100) operating hours each for routine maintenance and testing only. There is no limit during emergencies or power outages.

The non-road engines are subject to Pima County Code, however there are no limitations on the operational use of these engines. The emissions from non-road engines are not required to be included in a facility's aggregate air emissions.

B. Air Pollution Control Equipment

None

III. REGULATORY HISTORY

The facility has been permitted since 1978 and has undergone regular inspections to date. Past minor enforcement actions worth noting are:

May 1998:

Exceedance of the allowable 20% opacity limitation for the incinerator used to dispose of medical waste.
[This enforcement action was adequately resolved and subsequently closed in July 1998. The source discontinued the use of their incinerator.]

April 2007:

Failure to submit an application for a significant permit revision following installation of two emergency generators at the facility;
[This enforcement action was adequately resolved and subsequently closed in May 2007.]

July 2011:

Failure to limit the operation of NSPS emergency generators to use for emergency purposes only and failed to limit the operating hours of the emergency generators to 100-hours per year.
[This enforcement action was adequately resolved and subsequently closed in September 2 2009.]

The source is currently in compliance with their permit conditions.

IV. EMISSIONS ESTIMATES

PTE estimates were calculated using AP-42 and manufacturer's emission factors (see emission documents). Based on the estimates, the source's permit class remains a Class II, Synthetic Minor.

V. APPLICABLE REQUIREMENTS

New Source Performance Standards (NSPS)

NSPS for Stationary Compression Ignition Internal Combustion Engines.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

No new NESHAP rules apply.

Pima County Code (PCC)

This is not meant to be an exhaustive list of every regulation to which the Permittee is subject, but represents those cited in the permit. It is the responsibility of the Permittee to comply with all applicable regulations.

17.12.040	Reporting Requirements
17.12.185	Permit Contents for Class II and Class III Permits
17.12.510	Fees Related to Individual Permits
17.16.040	Visible Emission Standards, Standards and Applicability (including NESHAP)
17.16.050	Visibility Limiting Standard
17.16.165	Standards of Performance for Fossil Fuel Fired Industrial and Commercial Equipment
17.16.340	Standards of Performance for Stationary Rotating Machinery
17.16.400	Organic Solvents and Other Organic Materials
17.20.010	Source Sampling, monitoring and Testing
17.24.020	Recordkeeping for Compliance Determinations

The March 2014 significant revision reinstated a synthetic minor limitation on the dual-fired boilers; a diesel fuel limitation to consume no more than one million (1,000,000) gallons of diesel fuel (total) during any twelve (12)-consecutive month period.

VI. PERMIT CONTENTS

The following section of the TSD refers to the conditions of the permit and explains in detail why the permit was written with the conditions seen.

A. Applicability:

Southern Arizona VA Health Care System is required to obtain a Class II permit for pursuant to PCC 17.12.140.B.2.a since the facility is subject to the NSPS for Stationary Compression Ignition Internal Combustion Engine (CI ICE).

B. Emission Limits/ Standards:

1. Natural Gas and Dual Fired Boilers

II.A.1.a of the permit

Voluntary accepted fuel consumption limitation to limit SO_x emissions below major source threshold (90 tons/yr). PCC 17.12.190.B.

II.A.1.b of the permit

The fuel limitation standard is taken directly from PCC 17.16.165.G.

II.A.2.a of the permit

The visibility limiting standard is taken directly from PCC 17.16.040.

II.A.2.b of the permit

The property boundary emissions limiting standard is taken directly from PCC 17.16.050.D.

2. Generators (Non NSPS Engines)

II.B.1 of the permit

The operational hour limitation is taken from Environmental Protection Agency (EPA) memorandum dated January 25, 1995. In the memorandum the EPA addressed guidance for emergency generators and specified that 500 hours is an appropriate default assumption for estimating the number of hours that an emergency generator could be expected to operate under worst-case conditions.

II.B.2 of the permit

The fuel limitation standard is taken directly from PCC 17.16.340.H.

II.B.3 of the permit

The opacity standard is taken directly from PCC 17.16.340.E.

II.B.4 of the permit

The visibility limiting standard is taken directly from PCC 17.16.050.D.

3. Generators (NSPS) – Attachment 1 of the permit

I. Applicability

The standards contained in this Attachment 1 apply to owners/operators of emergency stationary compression ignition engines (CI ICE) that are not certified National Fire Protection Association (NFPA) fire pump engines and are model year 2007 or later. Specifically applicable units are identified in Attachment 4 of the permit. These standards are required in addition to those in the Specific Conditions and the Additional Permit Requirements. All conditions in Attachment 1 are Federally Enforceable Conditions.

II. Operational Limitations

II.A.1 of Attachment 1

The hourly limitation is taken directly from the 40 CFR 60, Subpart III, 60.4205(b) and 60.4202(a).

II.A.2 of Attachment 1

The monthly operating hour's and rolling 12 month total recordkeeping requirement is provided pursuant to a PCC 17.12.185.A.3 and 4. This condition is required to ensure the Permittee is attentive to the synthetic minor provisions of the permit.

II.B.1.a of Attachment 1

New CI ICE engines identified in the NSPS standard are required to the specific emission standards identified Table 2. "Useful Life" is the "warranty" time placed on the engine by the manufacturer. This requirement is taken directly from 40 CFR 60.4203, 40 CFR 60.4202(a) and 40 CFR 60.4205(b). At the end of the useful life, it then becomes the responsibility of the Permittee to ensure that the NSPS generators are meeting the emission limitations.

II.B.1.b of Attachment 1

Modified or reconstructed CI ICE shall be certified at or below the applicable emission standards throughout the useful life of the engine. This requirement is taken directly from 40 CFR 60.4203, 40 CFR 60.4202(a) and 40 CFR 60.4205(b).

II.B.1.c of Attachment 1

Permit reference to Attachment 4, guiding the Permittee to the applicable emission standards and the useful life of the engine.

II.B.1.d of Attachment 1

The operation and maintenance requirements are taken directly from 40 CFR 60.4206.

II.B.2 of Attachment 1

The opacity standards under the specified operational modes are taken directly from 40 CFR 60.4202(a)(1) & (a)(2), 40 CFR 890113 and 40 CFR 1039.105.

II.C.1 of Attachment 1

The diesel fuel specification requirements are taken directly from 40 CFR 60.4208(b) and 40 CFR 80.510(b).

II.C.3 of Attachment 1

The alternative fuel use approval procedure is taken directly from 40 CFR 40.4207(c).

II.D.1 of Attachment 1

Post December 31, 2008 stationary CI ICE engine installation restriction is taken directly from 40 CFR 60.4208(a).

II.D.2 of Attachment 1

Post December 31, 2009 stationary CI ICE engine installation restriction is taken directly from 40 CFR 60.4208(b).

II.D.3 of Attachment 1

The applicability of the installation restrictions is taken directly from 40 CFR 60.4208(g) and (h).

II.E of Attachment 1

The emergency designation provisions and maintenance/readiness testing of the CI ICE engines is taken directly from 40 CFR 60.1211(e).

II.F.1 of Attachment 1

The operation and maintenance procedures for the applicable CI ICE is taken directly from 40 CFR 60.1211(a).

II.F.2 of Attachment 1

With respect to 2007 model year and later stationary CI ICE subject to Attachment 1 of the permit, the demonstration of compliance with the emission standards specified in Attachment 4 of the permit is taken directly from 40 CFR 60.1211(c).

III. Monitoring Requirements

III.A of Attachment 1

The requirement to install a non-resettable hour meter on each applicable CI ICE prior to start up of the engine is taken directly from 40 CFR 4209(a).

III.B.1 of Attachment 1

The opacity measurement and calculation methodology requirement is taken directly from 40 CFR 89.113(b) and 40 CFR 86.884.

III.B.2 of Attachment 1

The opacity exemption provision for single cylinder and constant speed CI ICE is taken directly from 40 CFR 89.113(c)(1) and (3).

IV. Recordkeeping Requirements

IV.A of Attachment 1

The operational hour recordkeeping requirement is taken directly from 40 CFR 60.4214(b).

IV.B of Attachment 1

The demonstration to maintain compliance records of the diesel fuel requirement is a local only requirement pursuant to PCC 17.12.185.A.4.

IV.C of Attachment 1

The demonstration to keep all opacity compliance records is a local only requirement pursuant to PCC 17.12.185.A.4.

V. Testing Requirements

V. of Attachment 1

Performance testing requirements is taken directly from 40 CFR 60.4212 and PCC 17.12.185.A.3.a.

VI. Additional Requirements

VI. of Attachment 1

The applicable general provisions of 40 CFR 60.1 through 60.19 apply to all sources subject to the New Source Performance Standard.

VII. Facility Recordkeeping

VII of Attachment 1

The record retention requirement is a local only condition pursuant to PCC 17.12.185.A.4.

VII. IMPACTS TO AMBIENT AIR QUALITY

Not a major source thus no studies are required.

VIII. CONTROL TECHNOLOGY DETERMINATION

No control technologies needed to be determined for this significant revision or permit renewal.

IX. PREVIOUS PERMIT CONDITIONS

All previous permit conditions remain unchanged.