

TECHNICAL SUPPORT DOCUMENT

April 2015

I. GENERAL COMMENTS:

Banner - University Medicine Division is a medical hospital and research facility located in Tucson Arizona.

A. Company Information

1. Business License Name: Banner - University Medicine Division (BUMD)
2. Source Name: Banner University Medical Center Tucson
2. Source Address: 1501 N Campbell, Tucson Arizona 85724
3. Mailing Address: 1441 N. 12th St, Phoenix, AZ 85006

B. Background

The air quality operating permit for this facility was previously issued to University of Arizona Health Network (UMC). On March 2, 2015, Pima County Department of Environmental Quality (PDEQ) processed an air quality permit transfer application. The scope of the permit transfer is limited to a name change of the company. The staff's technical capabilities of operating the equipment in compliance with the terms and conditions of the operating permit remain unchanged.

The affected sources at the facility to which the air quality operating permit applies are identified in the following sections:

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| Section A | New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart III). |
| Section B | New and Existing Stationary Source Performance Standards for Stationary Rotating Machinery (PCC 17.12.340). |
| Section C | National Emission Standards for Hazardous Air Pollutants (NESHAP) Hospital Ethylene Oxide Sterilizers (40 CFR 63 Subpart WWWW). |

Historical records indicate that BUMC does not currently have any air quality violations. Past enforcement actions against the previous Permittee (UMC) worth noting are presented in III.A of this TSD.

C. Attainment Classification

UMC is located within an area that is in attainment for all pollutants.

II. SOURCE DESCRIPTION

BUMD maintains equipment essential to hospital operations in the event of an emergency/ electrical power outage. Specifically, BUMD operates a total of six generators to provide emergency backup power and peaking power to buildings and operations at BUMD. In addition, BUMD also operates two ethylene oxide sterilizers. These sterilization units are mainly used to sterilize medical equipment. The emissions from both sterilizer units are treated by a single catalytic oxidation unit.

III. REGULATORY HISTORY

A. Testing and Inspections

The facility has been permitted since August 1996 and has undergone regular inspections to date. Past enforcement actions worth noting are:

July 1999:

- UMC violated P.C.C. 17.28.010 by failing to comply with section B-3 (II)(B)(4) of the Pima County Air Quality Operating Permit (PCAQOP).
- UMC violated P.C.C. 17.28.010 by failing to comply with section B-2 (II)(A)(3)(a) and B-3 (II)(B)(1)(c)(2) of the PCAQOP.
- UMC violated P.C.C. 17.28.010 by failing to obtain a permit revision for the addition of an alternate fuel burning system to the natural gas generators.

[These enforcement actions were adequately resolved and subsequently closed on September 14, 1999].

August 2000:

- UMC received a compliance status letter for not submitting a written notification to PDEQ for the temporary replacement of an emergency generator.

[This enforcement action was adequately resolved and subsequently closed on September 13, 2000.]

April 2006:

- UMC received a compliance status letter for; 1) failing to monitor and record the fuel sulfur content within the boiler, 2) failure to observe the exhaust stack for the boiler at least quarterly for the evidence of

[This enforcement action was adequately resolved and subsequently closed on May 11, 2006.]

B. Excess Emissions

None. There have been no reports of excess emissions or permit deviations.

IV. EMISSIONS ESTIMATES

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 permit.

Pollutant	Potential Emissions (Tons per Year)
Nitrogen Oxides (NO _x)	5.10
Carbon Monoxide (CO)	1.54
Volatile Organic Compounds (VOC)	0.18
Particulate Matter (as PM ₁₀)	0.11
Sulfur Oxides (SO _x)	1.25
Hazardous Air Pollutants (HAPs – individual)	0.04
Hazardous Air Pollutants (HAPs – total)	0.04

Potential combustion emissions of CO, PM and SO_x are calculated using EPA EP-42 emission factors for the permitted equipment.

V. APPLICABLE REQUIREMENTS

Code of Federal Regulations (CFR):

- 40 CFR 60.1 through 60.19 General Provisions
- 40 CFR Part 60 Subpart III New Source Performance Standards (NSPS) for Pre-2007 Model Year Emergency Stationary Compression Ignition Internal Combustion Engines.
- 40 CFR 63 Subpart WWWW National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hospital Ethylene Oxide Sterilizers.

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.

- 17.12.185 Permit Contents for Class II and Class III Permits
- 17.12.190.B Permits Containing Voluntarily Accepted Emission Limitations and Standards
- 17.16.340 Standards of Performance for Stationary Rotation Machinery

VI. PERMIT CONTENTS

Section A – Specific Conditions for NSPS Stationary Compression Ignition Internal Combustion Engines.

Standard	Discussion	Authority
I	Applicability - Pre-2007 model year engines manufactured after 04/01/06 or modified/reconstructed after 07/11/05 that are emergency units but are not certified NFPA engines. Note: the rule states simply that applicability extends to units that “are not fire pump engines”—this has been interpreted to mean certified NFPA engines as “fire pump engine” is defined in 40 CFR 60.4219 as such.	40 CFR 60.4200 (a)(2)(i) & (a)(3)
II	Operational Limitations - Standards consisting of (A) Emission Limitations, (B) Fuel Requirements, (C), Installation Restrictions, (D) an Emergency Designation, and (E) Compliance.	40 CFR 60, Subpart III
II.A	Emission Limitations - Limits consist of (1) a requirement for new CI ICE to be certified to the applicable standards by the manufacturer for the useful life of the engine; (2) a requirement for modified/reconstructed CI ICE to meet the applicable standards and for the group or individual who conducts the modification/reconstruction to verify compliant emissions according to the appropriate test methods; and (3) an identification of the applicable emission limits and useful life via reference to the ATO.	40 CFR 60.4205 (a), 4203, & Table 1 of III
II.B	Opacity Standard – Standards consisting of a prohibition from emitting smoke from generators in excess of 60% opacity when engines are cold or are being accelerated under load.	PCC 17.16.040
II.C	Fuel Requirements - Graduated requirements by year and provisions for allowable diesel fuels.	40 CFR 60.4207(b) & 40 CFR 80.510(b)
II.D	Installation Restrictions - Graduated prohibitions by year from the installation of units that do not meet the applicable standards with certain allowances for certain categories of equipment. Note: prohibitions pertaining to non-emergency units have not been included in this Attachment as it is not concerned with such units.	40 CFR 60.4208
II.E	Emergency Designation - Limitations and provisions affecting the operation of emergency equipment. Note: Units requiring greater operational flexibility will need to abide by Attachment 6 or 7, as applicable.	40 CFR 60.4211 (e)
II.F	Compliance - Standards consist of (1) a requirement to operate equipment according to manufacturer’s specifications and (2) five optional methods for demonstrating compliance of the CI ICE.	40 CFR 60.4211 (a) & (b)
III.A & B	Monitoring Requirement to conduct quarterly visible emissions checks on the generator exhaust stack. A emissions evaluation could also be required upon request by the Control Officer.	PCC 17.12.185.A.3
III.C	Monitoring Requirements - Requirement to install a non-resettable hour meter on each CI ICE prior to startup of each engine. This standard provides a means for determining when the useful life of the engine expires.	40 CFR 60.4209 (a)

Section A – Specific Conditions for NSPS Stationary Compression Ignition Internal Combustion Engines. (Continued)

Standard	Discussion	Authority
IV	Recordkeeping Requirements - Requirement to maintain records of engine operation toward the demonstration that unit is exclusively operated as an emergency unit—otherwise, it would be subject to Attachment 6 for non-emergency units and its increased recordkeeping and reporting requirements. Requirement to maintain records verifying diesel fuel requirements.	PCC 17.12.185.A.4
V	Testing Requirements - Requirement to conduct testing according to 40 CFR 60.4212 should the Permittee elect to do so or be required to demonstrate compliance with applicable standards.	40 CFR 60.4212
VI	Additional Requirements - Requirement to comply with the General Provisions of 40 CFR 60 Subpart A except that an initial notification is not required	40 CFR 60.4218 & 40 CFR 60.4214(b)
VII	Facility Recordkeeping Requirement to maintain records for five years.	PCC 17.12.185.A.4

Section B – Specific Conditions for NESHAP Stationary Reciprocating Internal Combustion Engines.

Standard	Discussion	Authority
I	Applicability – Stationary rotating machinery located at a source which is only required to obtain a permit pursuant to Title 17 of the Pima County Code	PCC 17.12.140.B.3.a or b
II.A	Prohibition from operating affected stationary rotating machinery in excess of the allowable hours of operation in any 12-consecutive month period as specified in Table 3, Attachment 2 of the permit. This is only a SEL pursuant to PCC 17.12.190.B and a federally enforceable limitation when the applicant has taken a limitation to avoid major source status. All other generators are true minor sources operating within the allowable hours OR maintenance and testing hours. There is no limitation on hours of operation when operating the generators during a true emergency episode.	PCC 17.12.185.A.2 Or PCC 17.12.190.B
II.B	Requirement to monitor and keep records of each engine’s hours of operation in each 12-consecutive month period to ensure compliance with II.A of this section.	PCC 17.12.185.A.3 & A.4.
III.A	Prohibition from emitting smoke from generators in excess of 40% opacity; the first 10 minutes immediately after startup are exempt from this opacity limit.	PCC 17.16.340.E.
III.B	Prohibition from emitting smoke from generators in excess of 60% opacity when engines are cold or are being accelerated under load.	PCC 17.16.040.

Section B – Specific Conditions for NESHAP Stationary Reciprocating Internal Combustion Engines (Continued)

Standard	Discussion	Authority
III.C	Requirement to conduct quarterly visible emissions checks only on diesel generators and keep records of such inspections.	PCC 17.12.185.A.3.d
III.D	If necessary, provision for the Control Officer to request that a Method 9 test be conducted by the Permittee.	PCC 17.12.185.A.3.d
IV.A	Prohibition from firing fuels other than those allowed by the ATO. This is a SEL as firing alternate fuels may result in an increase in emissions above major source thresholds. There is also a prohibition from firing high sulfur fuel. This requirement is the basis for not requiring measures to show compliance with 17.16.340.F (see VI.A below).	PCC 17.12.190.B.
IV.B	Requirement to maintain records of fuel specifications to demonstrate compliance with IV.A of the Specific Conditions.	PCC 17.12.185.A.3.d.

Section C – Specific Conditions for NESHAP Hospital Ethylene Oxide Sterilizers.

Standard	Discussion	Authority
I	Applicability – BUMD is considered a <i>New</i> source within the applicable NESHAP subpart as the construction of the ethylene oxide sterilization units commence after December 28, 2007.	40 CFR 63.10382(a), (b), and (b)(2)
II.A	Ethylene Oxide Requirements (Compliance Dates) – The NESHAP rule became effective upon initial startup of the two ethylene oxide sterilizer units.	40 CFR 63.10384(c)
II.B	Ethylene Oxide Requirements (Management Practices) – The Permittee must implement a management practice to sterilize full loads of items having a common aeration time. An exception to full loads is allowed under medically necessary circumstances. Medically necessary refers to circumstances that necessitate sterilizing without a full load to protect human health. The medically necessary circumstance can be decided by a hospital central services staff, a hospital administrator, or a physician, based on generally accepted medical practices. Hospitals which route ethylene oxide (EO) to an air pollution control device (APCD) are in compliance with the rule requirements.	40 CFR 63.10390 and 40 CFR 63.10448
II.C	Ethylene Oxide Requirements (Initial Compliance Requirements) – Initial Notification of Compliance Status (INOCs) is due 180 days after your compliance date. The INOCs informs the Control Officer and EPA that the facility is subject to the NESHAP standard and indicates where compliance is based on following the management practice or on use of an add-on APCD that reduces EO emissions to the atmosphere. INOCs provides certification of compliance with standards. An example of a INOCs can be found on the EPA website: http://www.epa.gov/ttn/atw/area/inocs_example.doc	40 CFR 10400(c)

Standard	Discussion	Authority
III.A	Notifications, reports and records (Compliance and Notification Requirements) – Specific information is sought to aid the Compliance Officer to accurately determine compliance of a source. This requirement is taken directly from Subpart WWWW.	40 CFR 63.10430(a)
III.B	Notifications, reports and records (Recordkeeping) – The Permittee is required to maintain a copy of the INOCS. This requirement is taken directly from Subpart WWWW.	40 CFR 63.10432(a)
III.C	Notifications, reports and records (Formation and Retention of Records) – All information (including reports and notifications) are required to be maintained in a suitable form and readily available for expeditious review. This requirement is taken directly from Subpart WWWW.	40 CFR 63.10434
III.D	Notifications, reports and records (Approval of Alternatives) – Pima County Department of Environmental Quality does not have the delegated authority to approval alternatives to the applicability requirements of subpart WWWW. All requests for alternatives shall be directed to the Administrator of the U.S. EPA.	40 CFR 63.10442(c)

Alternate Operating Scenarios:

BUMD has not requested any alternate operating scenarios.

Miscellaneous Comments:

Existing institutional emergency stationary RICE located at an area source of HAP emissions do not have to meet the requirements of Subpart ZZZZ, including initial notification requirements.

[40 CFR 63.6590(b)(3)(viii)]

UMC operates five ‘institutional’ emergency stationary RICE.

Institutional emergency stationary RICE means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

VII. IMPACTS TO AMBIENT AIR QUALITY

Not a major PSD source so no impact studies are required.

VIII. CONTROL TECHNOLOGY DETERMINATION

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

IX. PREVIOUS PERMIT CONDITIONS

None removed.