

**TECHNICAL SUPPORT DOCUMENT**

**Air Quality Control Permit No. 48807  
For  
Flagstaff Medical Center**

**I. INTRODUCTION**

Permit Number 48807 is a synthetic minor class II renewal permit for Air Quality Control Permit Number 1000910 which expired on February 5, 2007. The permit is issued to Flagstaff Medical Center for operation of the boilers, emergency generators and an ethylene oxide sterilizer.

**A. Company Information**

Facility Name: Flagstaff Medical Center  
Mailing Address: 1200 N. Beaver Street  
Flagstaff, Coconino County, AZ 86001  
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Flagstaff, Coconino County, AZ 86001

**B. Attainment Classification**

The facility is located in an area which is attainment or unclassified for criteria pollutants.

**C. Learning Sites Evaluation**

In accordance with ADEQ's Environmental Permits and Approvals Near Learning Sites Policy, the Department conducted an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

There are 26 learning sites within 2 miles of the facility.

The Department has determined that the facility's emissions will not adversely affect the learning sites.

**II. FACILITY DESCRIPTION**

The facility has twelve (12) boilers. 5 of these 12 boilers are dual fuel boilers, and can be run on diesel and natural gas. Remaining 7 boilers are operated on natural gas only. The facility has five (5) diesel-fired emergency generators. In addition, the facility has one ethylene oxide sterilizer.

The equipment covered under this permit can be found in Attachment "C" of the permit.

**III. EMISSIONS**

When operating all equipment for 8,760 hours per year, the facility has a potential to emit (PTE) 297 tons per year of Nitrogen Oxides (NO<sub>x</sub>). To maintain the source's status as a synthetic minor, this facility has voluntarily accepted operational limitations. The facility is permitted to operate the emergency generators for a maximum of 500 hours per year, per generator, based on a

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twelve month rolling total. The facility is permitted to operate dual-fuel boilers on fuel oil for maximum of 500 hours per year per boiler, based on a twelve month rolling total. The natural gas-fired boilers are permitted to operate for 8,760 hours per year.

Table 1 provides Facility wide potential to emit (PTE).

**Table 1: Facility wide potential to emit (PTE)**

Pollutant	Facility-wide Emissions
	tons per year
CO	22.04
NO <sub>x</sub>	46.83
SO <sub>2</sub>	12.80
PM <sub>10</sub>	2.48
VOC	2.08
Ethylene Oxide	0.24

#### IV. COMPLIANCE HISTORY

The facility had six (6) air quality inspections since 1996. No Air Quality cases and/or violations have resulted based on these inspections.

#### V. APPLICABLE REGULATIONS

Table 2 identifies the applicable regulations for the facility.

**Table 2: Verification of Applicable Regulations**

Unit	Control Device	Rule	Verification
Internal Combustion Engines	None	A.A.C. R18-2-719	<p>The generators are not subject to NSPS Subpart IIII as these were constructed prior to 2006.</p> <p>A.A.C. R18-2-719 is applicable to existing stationary rotating machinery.</p> <p>The National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ is applicable to reciprocating internal combustion engines (RICE). This is an area source of HAPs. As all engines were constructed before June 12, 2006, these are considered existing stationary RICE. Existing compression ignition RICE do not have to meet the requirements of 40 CFR §63 Subpart ZZZZ (40 CFR §63.6590(b)(3)). Thus, these generators are not subject to NESHAPS requirements.</p>

<b>Unit</b>	<b>Control Device</b>	<b>Rule</b>	<b>Verification</b>
Natural gas fired equipment	None	A.A.C. R18-2-724	This standard is applicable to all natural gas fired equipment.
Ethylene oxide sterilizer	None	A.A.C. R18-2-730 40 CFR 63 Subpart WWWWW	A.A.C. R18-2-730 is applicable to all unclassified sources. Also, the “National Emission Standards for Hazardous Air Pollutants (NESHAPS) 40 CFR 63 Subpart WWWWW for Hospital Ethylene Oxide Sterilizers” is applicable the ethylene oxide sterilizer.
Fugitive dust sources	Water and other reasonable precautions	Article 6 A.A.C. R18-2-702	This Article is applicable to any fugitive dust source of air contaminant.
Mobile sources	Water Sprays/Water Truck for dust control	Article 8	This Article is applicable to mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.
Abrasive blasting operations	Wet blasting, Dust collecting equipment or other approved methods	A.A.C. R18-2-726	This standard is applicable to any sand blasting or other abrasive blasting operation.
Spray painting operations		A.A.C. R-18-2-727, SIP R9-3-527.C	This standard is applicable to any spray-painting operation.
Demolition/renovation operations		A.A.C. R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.

**VI. PREVIOUS PERMIT CONDITIONS**

Comparison of Conditions with previous Permit No. 1000910:

**Table 3**

<b>Previous Permit Condition</b>	<b>Determination</b>				<b>Comments</b>
	<b>Revise</b>	<b>Keep</b>	<b>Delete</b>	<b>Stream-line</b>	
Attachment “A”	x				General provisions - revised to represent most recent language.
<b>Attachment “B”</b>					
Condition I.A		x			This requirement for a certified Method 9 person is retained.

Previous Permit Condition	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Condition I.B		x			This facility-wide requirement for reporting of monitoring activities is relocated as Condition I.C.
Section II				x	The requirements for operating hour limitations for boilers and emergency generators are now covered under respective Sections for boilers and generators (Sections II and III). Hence, this Section is deleted.
Condition III.A	x				This Condition for fuel limitations for boilers is revised as some boilers are dual-fuel and others are only natural gas fires, and is renumbered as Condition II.C.
Condition III.B.1		x			The Condition for opacity standard for boilers is relocated as Condition II.D.1.c.
Condition III.B.2		x			The opacity monitoring requirements for boilers are relocated as Conditions II.D.2.b and c.
Condition III.C.1		x			The Condition for particulate matter standard for boilers is relocated as Condition II.D.1.a.
Condition III.C.2		x			The fuel monitoring requirement for boilers is relocated as Conditions II.D.2.a.
Condition III.D.1		x			The Conditions fuel sulfur limitation and sulfur dioxide emission standard are relocated as Conditions II.E.1 and 2.
Condition III.D.2		x			This Condition for fuel oil certification is relocated as Condition II.E.3.
Condition IV.B.1		x			The Condition for opacity standard for generators is relocated as Condition III.C.1.c.
Condition IV.B.2		x			The opacity monitoring requirements for generators are relocated as Conditions III.C.2.b and c.

Previous Permit Condition	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Condition IV.C.1		x			The Condition for particulate matter standard for generators is relocated as Condition III.C.1.a.
Condition IV.C.2		x			The fuel monitoring requirement for generators is relocated as Conditions III.C.2.a.
Condition IV.D.1		x			The Conditions fuel sulfur limitation and sulfur dioxide emission standard for generators are relocated as Conditions III.D.1 and 2.
Condition IV.D.2		x			The requirements for fuel oil certification are relocated as Condition II.E.3.
Section V	x				This Section for ethylene oxide sterilizer is revised to include NESHAPS requirements.
Section VI			x		The Section for material handling requirements is deleted as this not applicable to any of the facility's operations.

**VII. MONITORING AND RECORDKEEPING REQUIREMENTS**

1. Boilers

- a. A certified EPA Reference Method 9 observer is required to conduct a survey of visible emissions emanating from the stacks of the boilers. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required to keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in a Method 9 opacity reading in excess of 15%, the Permittee must report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity below 15%. The Permittee must keep a record of the corrective action performed.
- b. The Permittee is required to keep record of the number hours of operation for the boilers when operated on No. 2 fuel oil. The Permittee must maintain record of monthly and 12-monthly rolling total of the number of hours of operation for the boilers on fuel oil firing.

2. Generators

- a. A certified EPA Reference Method 9 observer is required to conduct a survey of visible emissions emanating from the stacks of the internal combustion engines, when in operation. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required to keep records of the initial survey and

any EPA Reference Method 9 observations performed. If the observation results in a Method 9 opacity reading in excess of 40%, the Permittee must report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity below 40%. The Permittee must keep a record of the corrective action performed.

- b. The Permittee is required to maintain records of monthly operating hours and rolling 12-month total for the emergency generators.

3. Ethylene Oxide Sterilizer

The National Emission Standards for Hazardous Air Pollutants (NESHAPS) 40 CFR 63 Subpart WWWW for Hospital Ethylene Oxide Sterilizers are applicable to the ethylene oxide sterilizer. The Permittee is required to maintain records of the date and time of each sterilization cycle, whether each sterilization cycle contains a full load of items, and if not, a statement from a hospital central services staff, a hospital administrator, or a physician that it was medically necessary.

**VIII. LIST OF ABBREVIATIONS**

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AQD	Air Quality Division
CO	Carbon Monoxide
EPA	Environmental protection Agency
hp	Horsepower
hr	Hour
IC	Internal Combustion
lb	Pound
m	Meter
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub>	Nitrogen Oxide
NSPS	New Source Performance Standards
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter Nominally less than 10 Micrometers
PTE	Potential-to-Emit
RICE	Reciprocating Internal Combustion Engine
SO <sub>2</sub>	Sulfur Dioxide
TPY	Tons per Year
VOC	Volatile Organic Compound
yr	Year