

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- NSPS SOURCE

PERMITTEE

Illinois Masonic Medical Center
Attn: Steven R. Verzi
836 West Wellington Avenue
Chicago, Illinois 60657-5193

Application No.: 73040048

I.D. No.: 031600DAU

Applicant's Designation: B-3, 2005

Date Received: August 23, 2005

Subject: Medical Center

Date Issued:

Expiration Date:

Location: 840 West Nelson Street, Chicago, 60657-5193

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of two 51 mmBtu/hour gas-fired boilers with #2 fuel oil backup, one 21 mmBtu/hour gas-fired boiler, four emergency generators rated, one 12,000 gallon storage tank, one 6,000 gallon storage tank, and six ethylene oxide sterilizers as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for NO_x, CO and SO₂). As a result the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes the current permit(s) issued for this location.
- 2a. The 21 mmBtu/hour boiler constructed, modified or reconstructed after June 9, 1989, and that have maximum design heat input capacity of 29 MW (100 million Btu per hour) or less, but greater than or equal to 2.9 MW (10 million Btu per hour), are subject to a New Source Performance Standard (NSPS) for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR 60, Subparts A and Dc. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.
- b. The Permittee shall fulfill applicable notification and recordkeeping requirements of the NSPS, 40 CFR 60.7 and 60.48c.
- c. At all times, the Permittee shall maintain and operate the boiler, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, as required by the NSPS, 40 CFR 60.11(d).

- 3a. No person shall cause or allow visible emissions of smoke or other particulate matter with an opacity greater than 30 percent, into the atmosphere from any emission unit other than fuel combustion emission units. The emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent, but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within 1,000 foot radius from center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in 24 hour period pursuant to 35 Ill. Adm. Code 212.123.
- b. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hr of actual heat input from any fuel combustion emission unit using liquid fuel exclusively (0.10 lbs/mmBtu) pursuant to 35 Ill. Adm. Code 212.206.
- 4. No person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hour) to exceed 200 ppm, corrected to 50 percent excess air, pursuant to 35 Ill. Adm. Code 216.121.
- 5a. The Permittee shall not utilize distillate fuel oil (Grades No. 1 and 2) in the boilers with a sulfur content greater than the larger of the following two values:
 - i. 0.28 weight percent, or
 - ii. The wt. percent given by the formula: Maximum wt. percent sulfur = (0.000015) x (Gross heating value of oil, Btu/lb).
- b. Organic liquid by-products or waste materials shall not be used in these fuel combustion emission sources.
- c. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 6a. Emissions and operation of the two 51 mmBtu/hour and one 21 mmBtu/hour natural gas boilers combined shall not exceed the following limits:

Natural Gas Usage: 41.7 mmscf/month, 250 mmscf/year.

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(Lb/mmscf)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxide (NO _x)	100.0	2.09	12.50
Carbon Monoxide (CO)	84.0	1.75	10.50
Volatile Organic Material (VOM)	5.5	0.12	0.69
Sulfur Dioxide (SO ₂)	0.6	0.02	0.08
Particulate Matter (PM)	7.6	0.16	0.95

These limits are based on the maximum fuel usage and standard emission factors AP-42. Compliance with annual limits shall be determined on a monthly basis from a running total of 12 months of data.

- b. Emissions and operation of the two 51 mmBtu/hour boilers combined using distillate fuel oil as backup shall not exceed the following limits:

Fuel Oil #2 Usage: 16,700 gallons/month, 100,000 gallons/year.

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(Lb/1,000 Gal)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxide (NO _x)	20.0	0.17	1.01
Carbon Monoxide (CO)	5.0	0.05	0.25
Sulfur Dioxide (SO ₂)	42.8	0.36	2.14
Particulate Matter (PM)	2.0	0.02	0.10

The emissions from the boilers are based on maximum fuel usage and standard emission factors AP-42. Compliance with annual limit shall be determined on a monthly basis from a running total of 12 months of data.

- 7. Emissions and operation of the generators shall not exceed the following limits:

- a. Units 1 and 2 fuel oil #2 usage 1,080 gallons/month and 6,480 gallons/year

	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(Lbs/1000 Gal)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxides (NO _x)	617.28	0.333	2.00
Carbon Monoxide (CO)	132.72	0.072	0.43
Volatile Organic Material (VOM)	49.38	0.027	0.16
Sulfur Dioxide (SO ₂)	40.12	0.022	0.13
Particulate Matter (PM)	43.21	0.023	0.14

- b. Units 3 and 4 fuel oil #2 usage 2,675 gallons/month and 16,050 gallons/year

	<u>Emission Factor</u>	<u>Emissions</u>	
	<u>(Lbs/1000 Gal)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Nitrogen Oxides (NO _x)	448.60	0.600	3.60
Carbon Monoxide (CO)	118.38	0.158	0.95
Volatile Organic Material (VOM)	12.46	0.017	0.10
Sulfur Dioxide (SO ₂)	42.37	0.057	0.34
Particulate Matter (PM)	13.71	0.018	0.11

- c. These limits are based on the maximum fuel usage and standard emission factors AP-42. Compliance with annual limits shall be determined from a running total of 12 months of data.

8. This permit is issued based on negligible emissions of volatile organic material (VOM) from the storage tanks. For this purpose, total emissions from the storage tanks shall not exceed nominal emission rates of 0.1 lbs/hour and 0.44 tons/year.
9. The six ethylene oxide (EtO) sterilizers shall not exceed the following limits:

<u>Sterilizer</u>	<u>EtO Usage (Lbs/Hour)</u>	<u>Operation (Hours/Year)</u>	<u>VOM Emissions</u>	
			<u>(Lbs/Hour)</u>	<u>(Tons/Year)</u>
Each Unit	0.11	1.456	0.11	0.08

Compliance with the above limits shall be based upon the required operating records and standard emission factors. Compliance with the annual limits shall be determined monthly based upon the last 12 months of operating data.

10. The Permittee shall maintain monthly records of the following items:
 - a. The amount of natural gas burned in the boilers (mmscf/month and mmscf/year);
 - b. The amount of #2 fuel oil burned in the boilers (gallons/month and gallons/year); and
 - c. The amount of #2 fuel oil burned in each emergency generator (gallons/month and gallons/year).
11. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
12. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.
13. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

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Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

If you have any questions on this permit, please contact George Kennedy at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:GMK:psj

cc: Region 1

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emissions from this facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels (e.g., 100 tons/year NO_x and VOM) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled and control measures are more effective than required in this permit.

<u>Emissions Unit</u>	<u>Fuel</u>	E M I S S I O N S					<u>VOM</u>
		<u>NO_x</u>	<u>CO</u>	<u>SO₂</u>	<u>PM</u>	(Tons/Year)	
3 Boilers	Natural Gas (3)	12.50	10.50	0.08	0.95	0.69	
	#2 Oil (2)	1.01	0.25	2.14	0.10	----	
4 Generators	Units 1 & 2	2.00	0.43	0.13	0.14	0.16	
	Units 3 & 4	3.60	0.95	0.34	0.11	0.10	
2 Storage Tanks						0.44	
6 Ethylene Oxide Sterilizers		-----	-----	-----	-----	<u>0.08</u>	
Total Emissions		19.11	12.13	2.69	1.30	1.47	

DES:GMK:psj